

# THE AUTOMOBILE

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## AUTOMOBILE SCHOOLS IN NEW YORK.

**T**HIS is the month when educational institutions of all kinds are opening throughout the country. Among these are the schools of instruction for automobile drivers—a branch of educational work that

is just beginning the third year of its infancy. It is conceded that Boston took the lead in starting this new departure, but the Hub lost its premier position to New York City in two short seasons, so far at least as

the number of such schools is concerned. Half a dozen or more automobile schools in the heart of Manhattan Island are just now announcing their openings for the fall and winter months, and, inasmuch



Class Attending Lecture on Gas Engine in Y. M. C. A. Auditorium.  
General View of Work Shop Where Parts Are Studied and Assembled.

Giving Lessons in Driving Cars on Riverside Drive.  
Studying Chassis in Y. M. C. A. Shop at Broadway and 63d St.

AUTOMOBILE SCHOOL OF WEST SIDE Y. M. C. A. OF NEW YORK IN LECTURE ROOM, SHOP AND ON THE ROAD.

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as most of these are new and not well known, a canvass of them has been made with the object of learning just what a student may expect to get from them in return for his tuition fee; whether the instructors are qualified to teach, what the tuition fees are, the nature of the lessons, the length of the terms, the class hours and the facilities offered the student for study.

## UNUSUAL CHARACTER OF TRAINING.

Owing to the nature of the special knowledge to be acquired, the work of the schools is of necessity of an unusual character, partaking more of the nature of manual training schools and of clinics than of public school or college work. The avowed purpose of all of the schools is to impart to young men of a mechanical bent and special aptitude the particular knowledge required to enable them to operate and properly care for an automobile, thereby fitting them to take positions as chauffeurs. Only one or two of the schools attempts to go further and teach an accurate knowledge of the theory of the gas engine, carburation, ignition and the engineering principles involved in automobile construction. In fact, the work departs so much from ordinary educational methods that text-books are not employed in any of the automobile schools, no written examinations are held and the students are not even required to make drawings on blackboard or paper nor to work out arithmetical problems. All of the instruction is given orally, and in nearly all cases directly from the cars and component parts. In only one or two of the schools will regular lectures be delivered in a class-room, and in very few cases will these be previously written out, the lectures being in the main extemporaneous.

## ROAD INSTRUCTION AND TROUBLE HUNTING.

Practical road instruction with the car forms a large part of the work of most of the schools, and, as the purpose is to teach the student not only how to run a machine but also how to take proper care of it and to locate troubles of all sorts, a considerable amount of attention is given to showing how to trace the causes of bad carburation, poor ignition and other engine troubles. Carrying the latter feature to its ultimate point, several of the schools purposely disarrange the carbureter adjustment or create short circuits or otherwise introduce a trouble which the student is required to determine and correct.

It is evident that such methods, if properly conducted by competent and conscientious instructors, should qualify a bright young man to become a chauffeur, either for himself or for an employer, provided the course is long enough to go thoroughly into all the functions of the various parts of the car and to fix clearly and unforgetably in the mind of the student the many probable causes of stoppage or imperfect running and the ways of determining and remedying them. Any person desiring to satisfy himself in this regard must take into consideration the intelligence of the instructors and their practical experience with cars of the different types.

Naturally, the schools devote most attention to instruction in gasoline cars, although any of them teaches the rudiments of steam and electric vehicles as well, and probably can give practical road lessons in the operation of either type.

Tuition fees range from \$25 to \$75, and terms of study vary from twelve lessons of two to three hours duration to a three-course term extending over five months in winter and spring. In one of the schools the students will be given instruction for five hours each day for five days in the week, during a period of four weeks; while in another only about six hours a week will be given to the work. Between these extremes one can get almost any arrangement of time for study he prefers, whether it be day or night, daily or weekly.

All of the schools will assist their graduates to obtain positions as professional chauffeurs, some being naturally in better positions to succeed in this than others, owing to their reputation and acquaintance among the trade and private owners.

## Y. M. C. A. SCHOOL THE PIONEER.

The first school of the kind started in New York was that of the West Side Young Men's Christian Association, at 318 West Fifty-seventh street, and there is an interesting story in regard to the inauguration of the course in connection with the regular educational work of the institution. About two and a half years ago the Automobile Club of America, feeling the growing need of competent automobile operators and recognizing the possibilities opened to young men by the new pastime and industry if properly trained in the care and operation of cars, proposed to Columbia University the establishment of a branch of engineering and operation. The suggestion met with the approval of a number of the faculty and some preliminary work was done in planning a thorough course, but a conservative member of the faculty then strongly opposed the move because he thought that the conduct of such a branch of instruction would not comport with the dignity of the university, and the project was dropped.

The club then broached the idea to Pratt Institute, and later to the New York Trade School, but in both cases endowments were asked before the work was undertaken, and as the club had no direct or financial interest in the matter, it carried the suggestion no further. In the meantime, the Boston Y. M. C. A. began its course of automobile instruction, the first of its kind in America, and, noting its quick success, the A. C. A. suggested to the West Side Y. M. C. A. of New York a similar departure. After looking into the subject, the association agreed to take up the work without endowment upon the understanding that the club would lend its influence to insure success.

## AID FROM CLUB AND UNIVERSITY.

With the aid of prominent members and officers of the automobile club and Professors Frederick R. Hutton and Charles E.

Lucke, of Columbia University, Educational Director Harrison S. Colburn of the Y. M. C. A. laid out a course of instruction in the different branches for last winter. The greatest difficulty met was the finding of suitable instructors—men of satisfactory character who knew the theory and practice and were able to impart their knowledge to others. The lectures on the theory and engineering problems of the different systems were delivered by Professor Lucke, while men in the trade give a number of practical talks on such subjects as ignition, batteries, carbureters and tires. For the more strictly practical instruction along operative lines the educational committee engaged Clarence Bowne Brokaw, a graduate of Rutgers College in New Brunswick, where he had taken the electrical engineering course and who had spent several years in the business of installing electrical plants, supervising the installation of dynamos, switchboards and the erecting of the outside wiring systems. Later he had been manager of the Ranney garage in New York for two years, which position he gave up to devote his time to the Y. M. C. A. work.

The Y. M. C. A. innovation met with success from its inception, owing in large measure to the widespread publicity given to the work of the Boston Y. M. C. A. school and to the standing of the association throughout the country. The size of the classes exceeded all expectations, and during the winter there were more than 300 students who took the courses. The students were drawn from all ages and stations in life; at first an attempt was made to divide the students into owners' and chauffeurs' classes, but it quickly became apparent that any division was impossible, and the students were mixed indiscriminately, men of wealth and position in business and society rubbing elbows with young men of some mechanical aptitude and learning who were studying to become professional chauffeurs. The men of wealth attended the classes to gain a general knowledge of the mechanics of the automobile so that they might be better acquainted with the cars that many of them owned and frequently drove.

## MANY OWNERS BECOME STUDENTS.

Many of the students were prospective buyers of cars who desired to learn the rudiments of automobile theory and practice before becoming owners. As showing the large proportion of students who took the course with no intention of becoming professional drivers, it is said that of 235 students who completed the courses last winter only eighty took the final examinations that would entitle them to obtain certificates as chauffeurs. Among the students were several men actively engaged in the trade, including the manager of one garage and the vice-president of another.

The unexpected proportions attained by the classes soon made it necessary to expand the facilities for clinical work, and the association leased a two-story garage, or shop, 40 by 50 feet, at Broadway and Sixty-third

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street, especially for the purpose, buying several well-known makes of cars to be studied from the chassis and to be used on the road.

These facilities have been retained and extended for the coming winter's work, the first term of which began last Wednesday night. Some changes have been made in the method of instruction, and instead of having technical lectures delivered by professors, most of the teaching will be elementary and of such a simple nature that none of it will be "over the heads" of young men who, while bright and having mechanical bent, are not graduates of technical schools. All mathematical work will be practically eliminated, and it will be kept constantly in mind that the purpose is not to teach automobile engineering, but to train men to know a car so as to be efficient operators and qualified to take proper care of it. Most of the lectures, therefore, will be given by Mr. Brokaw, who is director of the automobile department. Some of these will be delivered in the class-room at the West Side branch and others in the garage on Sixty-third street. A corps of six or seven instructors will help with the practical work in the clinics and give lessons in road driving. These instructors are all young men who have been graduated by the Y. M. C. A. school—a practice followed by colleges and by the Boston Y. M. C. A. in selecting their junior instructors. The management knows these men personally and the men know the methods of study and teaching in the school.

#### DIVIDED INTO THREE COURSES.

The coming fall and winter work is divided into three courses. Course I. comprises popular lectures on steam, gasoline and electric cars, illustrated by lantern slides and with blackboard work, delivered by Mr. Brokaw and supplemented with lectures on such topics as the general care of tires, use and abuse of gasoline and rules of the road, given by persons especially qualified by experience to talk on each subject. These lectures are given Wednesday nights during a period of three months beginning the first week in September. Tuition for the course, if taken separately, is \$10. No one is privileged to take any of the courses, however, unless he is a member of the Y. M. C. A. or becomes one, the membership fee being \$5 a year.

Course II. includes Course I. and in addition there is "garage laboratory" work for students who wish to become familiar with the construction and care of the various types of machines. This course runs for three months also, conjointly with Course I. Lectures and demonstrations are given in the garage, where the cars are dissected, the functions of each part explained and the numerous "diseases" and methods of correcting them studied. Machines are purposely "queered" and the students required to diagnose the trouble and apply the remedy. The classes are divided into groups, so that

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each student may be given personal attention. A period of about three hours each week is given to this course by each student, and the instruction may be in the forenoon, afternoon or evening, as arranged by the educational department. The tuition is \$35 for the course, which, as previously stated, includes also Course I.

Course III. embraces road work with the cars, and is given in the spring term, covering a period of two and a half months. It is open only to men who have passed the examinations in Courses I. and II. The hours for lessons are necessarily contingent upon the weather and condition of the cars. Tuition for the course is \$5, making the cost of the whole series of three courses \$40, to which must be added \$5 more by such students as are not already enrolled in the Y. M. C. A. membership.

#### WHAT IS TAUGHT IN ROAD DRIVING.

During the road driving season in the spring term the student receives one lesson in operation each week, of a duration of an hour and a half. Only three men are sent out with each instructor, so that there is no overcrowding of the machines and each can see and try the various manipulations conveniently. Besides following up lessons in driving on the boulevard with operation in the heavy traffic of the avenues, special attention is given to instilling in the minds of the student the rules of the road and courteous consideration for other users of the streets. Particular attention is also taken to teach each student how to stop quickly in emergencies, a thorough drill being given in this, since it is held that "there is all the time you want for starting, but often almost none for stopping."

Principal Brokaw expects that 150 students will be enrolled in the first term this fall and that there will be more in the second term, which probably will begin about the time the first term closes, near the end of November. Many business men who are now out of the city will have returned then and be able to give the necessary time to attend the classes. The management also has under consideration the desirability of holding spring and summer terms, owing to the demands of young men who attend school and college in the winter and cannot take on the extra study then.

#### EMPLOYMENT BUREAU MAINTAINED.

To assist its students to remunerative positions, the association keeps a list of graduate chauffeurs, and recommends and furnishes certificated operators to employers. The supply of such operators has been wholly unequal to the demand during the past season, it is said. Certificates are given to applicants of approved character who pass the final examinations at the close of each term. Each candidate is required to give satisfactory references as to character and habits, and none is given a certificate until he has demonstrated his competency in the garage and on the road to deal with

emergencies and to control both the machine and himself.

The accompanying reproductions of photographs show the methods of teaching in the class-room, in the garage and on the road. On the advisory committee of the automobile school are Dave Hennen Morris, president of the Automobile Club of America; W. E. Scarritt and Albert R. Shattuck, ex-presidents of the A. C. A.; Prof. Frederick R. Hutton, dean in the department of engineering at Columbia University, and E. T. Birdsall, of the technical committee of the A. C. A.

*(To Be Continued.)*

## Military Automobiles.

### Special Correspondence.

PARIS, Aug. 31.—As the result of the competition for military automobile transport wagons incorporated in the competition held by the Automobile Club of France last month for all kinds of industrial vehicles, the French war department has just bought the first three cars figuring on the official classification. They are a Delahaye, which secured 1,606 points; a De Dion-Bouton, with 1,585 points, and a Gillet-Forest, which obtained 1,498. The competition of 1904 had to be abandoned, owing to lack of entries; this year no fewer than twelve wagons responded to the invitation of the Minister for War; and so keen was the competition, notwithstanding the severe nature of the regulations—during a seven days' run it was forbidden to repair or regulate motor or vehicle—that very careful selection was needed to draw up the official classification. It was stipulated that the Government should buy the first three and accord money prizes to the four following winners; but owing to the excellent quality of all the competitors the Minister of War accorded two additional prizes. The first nine wagons in order of merit are: Delahaye, Dion-Bouton, Gillet-Forest, two Peugeots, De Dietrich, Peugeot, Ariès, Latil. The three automobile baggage wagons just acquired will enter into service immediately. They are the only automobiles existing for transport service in the French army, but if they prove satisfactory others will be rapidly added to their number.

"Rulers Who Motor" is the title of a list of reigning personages addicted to automobile printed in a French paper. It is stated therein that the king of England possesses a Daimler, Darracq and two Mercedes, one quite a late addition; the German emperor has three Mercedes and a Fiat; the czar of Russia a Darracq; the king of Italy a Panhard and a Fiat; the kings of Portugal and Spain both drive Panhards, while the queen of Holland has a Mercedes, and the king of the Belgians a Mercedes and a Mors. The shah of Persia owns two Gardner-Serpollet steam cars, and Prince Albert of Monaco a Mercedes.

## From Boston to Norumbega Park and Back.

By ROBERT BRUCE.

ONE of the most popular and interesting of the short round trips in the Boston district is that to Norumbega Park and Tower, supposed to mark the first settlement of the Norsemen in America. A choice of several routes is available for this run, including practically all those which reach the many suburbs in the Watertown-Waltham-Newtons district. The park and tower are located on River street, on the west side of the Charles river, as you follow in a southward course along that river from Waltham, or north from Newton Lower Falls or Riverside toward Waltham.

Most Norumbega trips are planned to and from Boston with a general preference, at least one way, for that superb road system which connects "The Hub" with the district familiarly known as "the New-

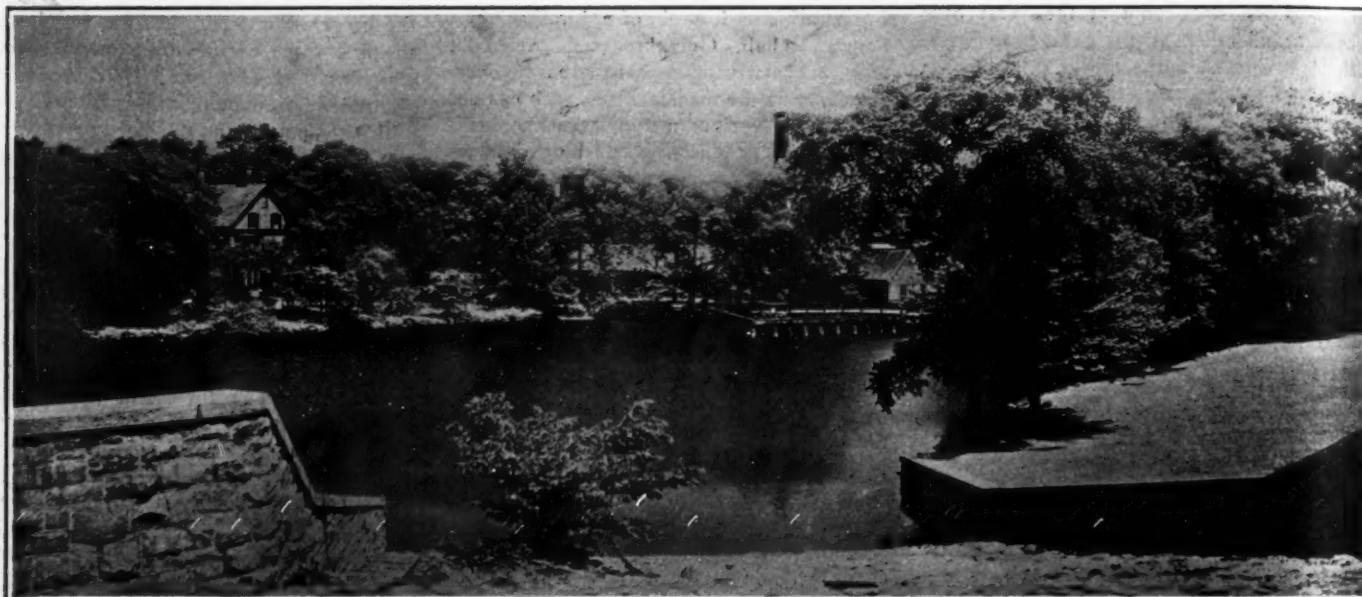
continues direct to Chestnut Hill Reservoir.

Bear left into the reservoir grounds and around the reservoir into Commonwealth avenue extension. A half circuit of the reservoir grounds will bring into Beacon street, leading to Newton Center, Waban, Newton Lower Falls, etc., but a nearly complete circuit will carry the tourist into Commonwealth avenue extension. Keep this fine thoroughfare—some grades but splendid surface all the way—to Auburndale. Pass Boston & Albany railroad station and continue same boulevard to bridge across the river a short distance beyond Auburndale. At intersection of River street, make right turn and keep a northerly direction on River street to Norumbega Park and Tower on left-hand side.

### POINTS OF INTEREST ALL THE WAY.

Whichever way the autoist makes this run he will usually find the roads excellent and in good condition from end to end. Some distance beyond Roberts Station, you come to Stony Brook Bridge, a pleasant spot. As the water comes tumbling down the stream over the rocks, there is an almost noiseless ripple, that is very acceptable after the noise and confusion of the city streets. Looking down the stream as it rolls toward the Charles, one can almost get a view of its junction with that river, which was once known as the Norumbega. The next turn to the right brings you in a few rods to Stony Brook Reservoir, of the Cambridge Water Works.

This pretty sheet of water, about four acres in extent, covers the evidence of an extensive fish industry which it is said was conducted by Northmen. Fort Norumbega, which was nearby, was for a short time occupied by the Brentons, some 400 years



STONY BROOK RESERVOIR, CAMBRIDGE WATER WORKS, ONE OF THE BEAUTY SPOTS NEAR FORT NORUMBEGA, 400 YEARS OLD.

tons." This system is made up practically of Beacon Street Boulevard to Chestnut Hill Reservoir (5 1-2 miles), and a somewhat longer stretch of Commonwealth avenue extension to and through Auburndale to the bridge over the Charles river just beyond, immediately above the Newton Club boathouse.

#### FROM BOSTON VIA AUBURNDALE.

From downtown Boston take either Beacon street or Boylston street (on opposite sides of the Common and Public Gardens). If Boylston street, turn right at the end of the Public Gardens into Arlington street, four blocks ahead to Beacon street. Go straight out Beacon street across Massachusetts avenue, making left bend in crossing Commonwealth avenue (itself another direct way from the Public Gardens). After intersection with Commonwealth avenue, Beacon street crosses the overhead bridge over Boston & Albany railroad, and

From Public Gardens, Boston, take Commonwealth avenue through the Back Bay residence district, direct through Allston and Brighton, crossing the Charles river shortly beyond. Same thoroughfare later becomes North Beacon street, which continues past U. S. arsenal, on right, to center of Watertown. Keep North Beacon street to Main street direct to center of Waltham. Thence Main street through Waltham to beginning of Weston street, but instead of keeping on to Weston, bear left into South street.

Pass (on left) the "Town Farm" and Mt. Feake Cemetery; then cross Boston & Maine railroad and Stony Brook—all the way on South street. Same thoroughfare continues past Roberts railroad station and the pumping station to intersection of River street. Norumbega Park and Tower are on the right side, near the junction of South street (from Waltham) with River street (from Auburndale and Riverside).

ago, and many years earlier there was a large settlement of the Northmen in the vicinity. Returning to South street, the first wood road to the left brings you to Norumbega Tower, from the top of which is obtained a view that it would be hard for an artist or writer to justly describe.

Prof. Hosford erected the beautiful tower to mark the site of Fort Norembega, which was at the junction of the Charles river and Stony Brook. It was surrounded by a stockade and ditch, the latter of which still remains. The ditch is in places ten or twelve feet deep, much of it is graded and carefully paved with rounded boulders on the bottom and sides.

#### BEAUTIES OF THE SITE.

It would be hard to find a more tranquil picture of life and beauty surrounded by nature than that which is obtained from the tower top on a warm autumn day. The snake-like, winding course of the Charles

is dotted here and there with delicate canoes which skim and float along in accordance with the effort of those who paddle. The deep green foliage of the banks and surrounding country and the dark waters of the Charles make a fitting background for the brilliant pageant of boatmen and canoeists. The thoughts of the spectators will drift back hundreds of years to the time when the Brentons occupied the surrounding country.

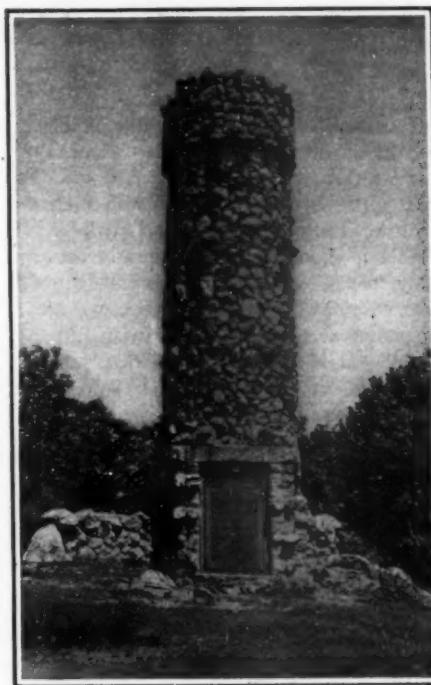
Elizabeth G. Shepard, in her guide book of Norumbega and Vineland, says Prof. Hosford chose this particular site for the tower because of the beauties of the site, but continues: "How beautiful it is indeed, and as we slowly mount the tower steps the view is charming beyond description. The gentle undulating country, the trees with their varying foliage and the river flowing by, reflecting the loveliness of shore and sky. Ever and anon a light canoe steals softly along, or a fleet of boats pass by." She also states that the Indians could not pronounce "b" without putting "m" before it, so that Norbega became Nor'mbega or Norumbega. It means belonging to Norway, once called Norvega or Norbega.

The country to which the Northmen came they first called Vineland. But many years after, when they had become merged more or less into the Indian people, and other explorers came, the answer to inquiries concerning the name of the country would naturally be Norumbega in the sense of belonging to Nor'mbega or Norway.

#### RETURN TRIPS TO BOSTON.

Reversing the outbound trip first given, via Commonwealth avenue extension, these directions will be found sufficient:

Keep River street downward a short distance to intersection of South avenue; here turn right, cross bridge over Charles river and enter Commonwealth avenue extension. On same thoroughfare through Auburndale,



TOWER ON SITE OF EARLY NORSE SETTLEMENT

passing somewhat above (not through) Newton Center, to Chestnut Hill Reservoir. Bear right through reservoir grounds, then left into Beacon street, which keep direct into the Back Bay residence district of Boston. After crossing Massachusetts avenue, either Beacon street, Commonwealth avenue or Boylston street are direct to the Public Gardens and Boston Common.

Reversing the outbound trip given via Waltham and Watertown, these are the essential directions:

Go north on South street, passing Mt. Feake Cemetery and the "Town Farm," into Main street, Waltham. Keep Main street to and through center of city of Watertown into North Beacon street, pass-

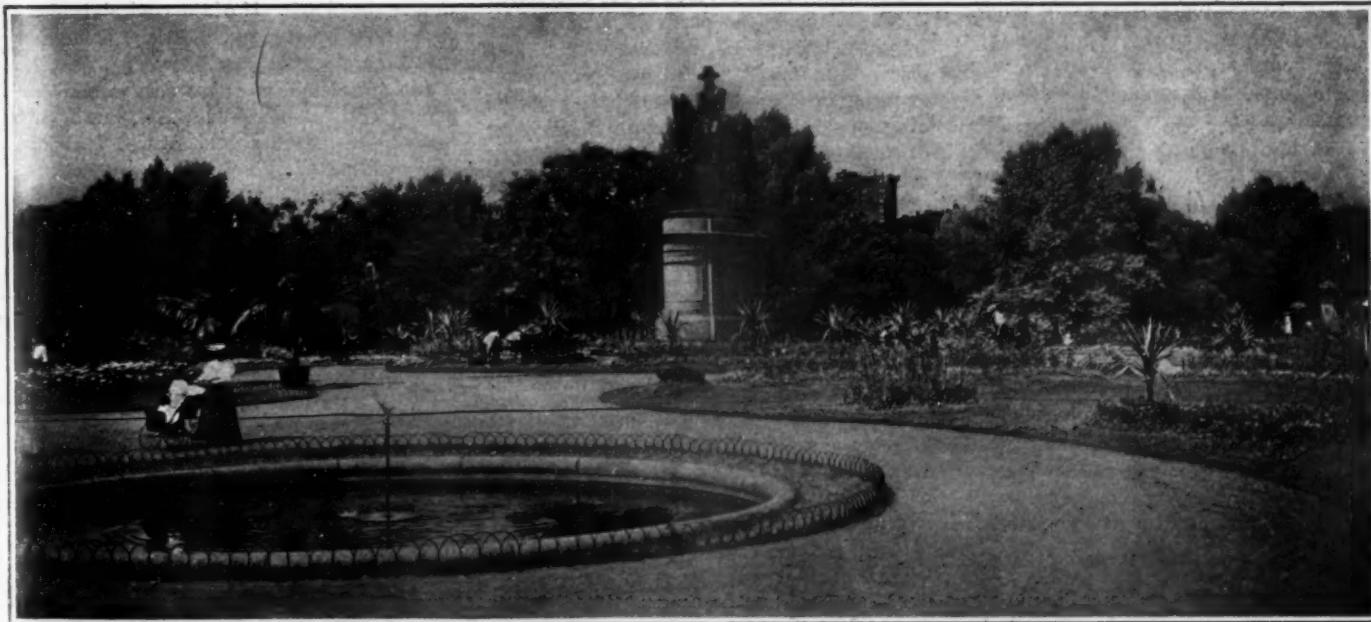
ing U. S. arsenal on lefthand, direct through Brighton and Allston into Commonwealth avenue, a splendid entrance into Boston. Commonwealth avenue comes to an end at Arlington street—the Public Gardens immediately ahead. Turn right two blocks to Boylston street, or left two blocks to Beacon street, leading downtown on opposite sides of Boston Common.

#### OPTIONAL RUN VIA CAMBRIDGE AND BELMONT.

Among the optional routes between Boston and Waltham is one via Cambridge and Belmont. Directions: From Massachusetts avenue, crossed by all avenues and boulevards west from the Back Bay district of Boston, keep out across Harvard Bridge, thence along same thoroughfare through Cambridgeport to Harvard Square (college on right), Cambridge. On past college, bearing left from Massachusetts avenue into Concord avenue immediately beyond.

Keep Concord avenue past the upper edge of Fresh Pond into Belmont, passing the station and crossing the tracks of the Boston and Maine railroad. After crossing railroad at Belmont, turn sharp left into Pleasant street, along with railroad to intersection of North street. Bear right on North street to intersection with Quince street, where bend left and go through Quince street to Linden Street and through Linden street into Main street, Waltham.

If the autoist going this way has plenty of time, it will pay him to turn left at the Fresh Pond driveway gate and drive along the right-hand shore, or make the circuit of Fresh Pond, coming out again on Concord avenue, thence as already directed. At the junction of Quince avenue and Beaver streets is the "Old Elm," a local landmark. From Waltham to Norumbega and return is identical with the latter part of the second route given; and one who wishes to make a



FOUNTAIN IN BOSTON PUBLIC GARDENS, ENTERED FROM BEACON STREET, COMMONWEALTH AVENUE OR BOYLSTON STREET.

return trip this way will have no difficulty in reversing the outbound description.

A widely different return route from Norumbega to Boston, possibly useful in planning round trips, is down River street, as if intending to connect with the Commonwealth avenue extension. But instead of turning left there, keep right short distance to crossing of East Newton street. Here bear left on East Newton street, coming soon under the Boston & Albany railroad tracks down into the Charles river intervalle, crossing the Charles about an eighth of a mile above Riverside. At Newton Lower Falls turn left into Beacon street, a good road, but a stiff climb to the top of Chestnut Hill, then past Chestnut Hill reservoir on the way to Boston again.

The round trip between Boston and Norumbega will average about twenty-five miles in length, using any of the routes given in either direction. This makes it a very popular half-holiday outing. Slightly altered schedules will allow the driver to take in practically all the points of interest in the Watertown-Waltham-Newsome district. Strangers visiting Boston will find this one of the most interesting of short local tours.

### Cars for Town Use.

*Special Correspondence.*

PARIS, Aug. 31.—As has already been announced, the Automobile Club of France is organizing a competition of automobiles for town use to be held during the Paris Salon next December. Every automobile taking part in the competition must be exposed at the show, where a section will be specially reserved for them. The practical test will take place on Thursday, December 21, when each car will have to cover a distance of 63 miles within the city of Paris.

Two classes are provided, one for gasoline and steam cars and the other for electrics, each of these two classes being divided into four divisions, namely: Cars selling at less than \$1,000, from \$1,000 to \$1,600, from \$1,600 to \$2,400, and automobiles listed at more than \$2,400. Every competitor must prove by his catalogues that the cars are actually sold at the price for which they are entered. The classification will be based on regularity of running, comfort, and elegance and finish in the construction of the body work.

The entrance fee is fixed at \$80 for each car, but \$40 of this may be returned to the competitors, \$20 being returned for every car taking part in the competition and an additional \$20 for every automobile having covered the 63 miles test in accordance with the regulations. The club is making the conditions as advantageous as possible in order to encourage the construction of this class of automobile.

The Grand Duke Cyril of Russia, the hero of so many romances, has joined the Bavarian Automobile Club.

## Suggestions About Care of Cars.

By G. A. RAGE.

**A**T the end of a day's ride, after shutting off the oil and gasoline feeds and taking out the safety plug (if any), it is best to wash the body of the car rather than leave the dirt to dry on hard. If a hose is available it should be played gently on all muddy parts, avoiding scrupulously, of course, anything tending to get water into the gasoline or to wet the battery, magneto or spark coil if these are insufficiently protected. The mud should thus be "melted" off, as it were. Follow this by sponging all painted work with a large sponge applied with as little rubbing as possible. When the body surfaces are clean, rub them down with a chamois skin wet and wrung dry, and follow with wet cotton waste or soft cloth. Finally, once a week or so, rub over with boiled linseed oil or turpentine and polish with a dry cloth. This will preserve the fresh appearance and high finish of the paint for a long time.

The upholstery can be cleaned with a damp cloth or with benzine. Protected portions of the chassis may be cleaned with a hose; but working parts of the motor and clutch are best wiped off with a bunch of waste soaked in gasoline. It is not necessary to go over every inch of the surface in this manner, and to do so would take more time than the man who cares for his own machine can generally spare; but the plugs should be cleaned, the make and break igniter box also, and the flywheel clutch and its thrust collar. If the contact spark is used, all parts of its mechanism should be kept as clean as practicable.

### ATTENTION TO LUBRICATION.

Besides the foregoing, such items as to lubrication, etc., as call for daily attention, are generally fully covered in the instruction books. Among the parts calling for less frequent lubrication, the gears claim first place. For these, some makers recommend heavy crankcase oil, some ordinary machine oil, some a mixture of grease and oil. Any of these is good if properly attended to, but grease or heavy oil is the best for light cars of high power where the gear tooth faces are narrow and bear high pressure, which would squeeze out a light oil. Whatever lubricant is used should be cleaned out and renewed now and then, the frequency depending on how rapidly it turns back with the metal ground off from the gears, and on whether the shaft bearings are lubricated from the inside of the case or not. If oil is used the depth of the case under the gears will affect the matter also, by giving more or less chance for the metal dust to settle.

When removing the lubricant, it is best to wash out the case very thoroughly with kerosene before refilling. Very good results have sometimes been obtained by filling the case clear full with pure grease and leaving it for the entire season. If, however, the

lubricant is thin enough to flow, only enough to touch the lower gears should be used, as otherwise the churning will be excessive.

The lubricant for the differential case (and bevel gear case, if shaft drive is used) may be forced in with a "grease gun" every 150 to 500 miles, according to the make of car.

### INSPECTION OF THE MOTOR.

The discerning driver will not have failed to reflect that by a periodical inspection of the motor, or rather by the operator's keeping himself constantly informed of its condition, many of the unexpected minor troubles can be averted. For example, if the crank case is daily drained of oil and a measured fresh supply introduced, one is not likely to have sooted plugs chargeable to over lubricating by the splash system. An immediate stop in case of failure of the circulation will save the necessity of grinding in valves or worse. A practised ear can save its owner a fruitless hunt elsewhere for trouble when a contact screw is loose or the battery weak.

Again, it is not difficult to know whether or not the valve stem keys or cotter pins are threatening to shear off, or whether the springs are showing signs of weakness. A few spare keys and springs, and one or two inlet valves and cages, when the motor is fitted with the latter, are always good things to have on hand, since springs and other valve parts are always liable to break.

### GRINDING IN EXHAUST VALVES.

If one is about to start on a long tour, it may be well to grind in lightly all the exhaust valves at least. Experience will show how much need of this there is likely to be.

Among the other parts of the car which will be the better for an occasional inspection, is the clutch. If of the conical, leather-faced type, its face must be kept free from dirt, oil and grease, any of which will make it slip. It should be wiped clean when necessary with a piece of waste thoroughly wetted with gasoline, and dressed occasionally with castor oil.

If the clutch leather is not sufficiently accessible to be wiped off with waste, it can be washed off by squirting gasoline on it with a syringe or "squirt gun."

### CASTOR OIL FOR CLUTCH.

When castor oil is applied to a clutch leather, the car should not be used for several hours afterward; in fact it should be left over night to give the oil a chance to soak in and also to dry up. If the car is used too soon after applying the oil the clutch is liable to slip and burn the leather out. Castor oil can be applied by means of the "squirt gun" before mentioned. It is advisable after applying castor oil, to leave the clutch "out" or disengaged for a few hours to facilitate the absorption of the oil by the leather.

The use of resin is not to be recommended. If resin is used, it should be used very sparingly, as it is liable to make the clutch stick if used in any quantity. A sprinkle of fuller's earth is sometimes useful to make it hold. The spring should not be tightened unless absolutely necessary to prevent slipping. If the car has planetary speed change gearing, the latter will require no other attention than to oil frequently, keep clean and adjust as needed to prevent slipping. Too much oil here will do no particular harm.

A car with universally jointed propeller shaft should have the rearmost joint at least encased to protect it from dust and mud. Leather cases are made for this purpose, and inside the case the joint should be packed with grease.

Driving chains should be taken off about once a week, wiped clean, and soaked over night in kerosene. They should then be wiped dry and immersed in hot tallow for about an hour. After the chains have cooled and the tallow has dried, they may be put back on the car. They should be brushed clean at least once a day when in use, and graphite paste applied. The chains should run a little slack, but not too slack, and when adjustment is necessary care should be used to adjust both ends of the axle alike, so the wheels will run true.

#### BRAKES TO BE INSPECTED.

The brakes are among the most important organs of the car and should never be neglected on any account. If the brakes are not operated through an equalizing device, care must be taken to adjust both equally. They should never be allowed to drag, if, as usual, there is a support provided to keep them clear of the drums when not in action. Metal to metal brakes have a tendency to gather dirt, which causes them to fill and drag if not cleaned out now and then. Even the enclosed brakes are liable to do this, and if the car moves stiffly when everything seems free, the trouble may be at this point. Never use resin on leather or wood brake linings.

Some steering gears are supplied with means for taking up wear in the worm or nut constituting the irreversible mechanism. This is desirable, but a good deal of lost motion may be avoided elsewhere in the steering by encasing the joints of the connecting links between the gear and the wheels in leather, and packing them with grease.

The death of the young automobilist at Newport, it is now asserted, was not due to fast and reckless driving, for "he was not going more than thirty-five miles an hour." We shall expect to hear next of the Brooklyn Bridge "jumper" whose death will be due not to recklessness but merely to "shock."—*Evening Post, New York.*

An international road race is to be organized for 1906 by the German Automobile Club, if government sanction can be obtained.

## THE AUTOMOBILE.

### Road Test of Electric Automobiles.

From Our Own Correspondent.

PARIS, Aug. 30.—A few months ago the Automobile Club of France announced its intention of holding a touring competition for electric automobiles over a course from Paris to the seaside resort of Trouville, distant about 130 miles. Owing to lack of entries, however, the contest, which should have been held this month, had to be abandoned by the club. M. Védrine, who had originally entered for the competition and constructed two automobiles, resolved that, despite the official abandonment of the event, he would not lose the opportunity of showing what could be done by electrics on the high roads.

A test of two cars was accordingly arranged, and, despite unfavorable weather conditions, a start was made at 7 o'clock Saturday morning from in front of the Automobile Club de France in the Place de la Concorde in Paris. The two automobiles were a hansom cab and a landau, the former carrying three passengers and the latter four. Both of them are driven by single electric motor fitted on the rear axle. The motor, which is constructed by Jacquet, gives speeds varying from 6 to 28 miles an hour.

The three-seated cab weighs about 3,476 pounds and has a consumption of 60 amperes when running at 25 miles an hour on the level. At 70 amperes a speed of 28 miles an hour is attained. The battery consists of 1,540 pounds of accumulators, their capacity being 250 ampere-hours. The landau is rather slower than the cab, having only one battery of accumulators weighing 1,210 pounds, with a capacity of 210 ampere-hours. Its total weight is 3,960 pounds. Both cars are fitted with Continental tires.

M. Védrine himself steered the cab, in the interior of which were two passengers, and the landau with three passengers was piloted by the shop foreman. The town of St. Germain, about 12 miles out of Paris, was reached in 1 h. 10 s. by the cab and in 1 hr. 16 m. 25 s. by the landau. It was from this point that the run against time commenced, the timing being performed by officials on board a 24-horsepower Darracq. The first 52 kilometers were covered by the cab in 1 hr. 20 m., giving an average speed of 24.2 miles an hour. After a run of two hours twenty-nine minutes Evreux was reached, and immediately the electrics went into the municipal electric station to be recharged. The cab took its full charge in 3 h. 30 m. and the landau in 2 h. 45 m.

At 3 o'clock the second stage of the run was commenced, and Trouville was reached by the cab in 6 h. 7 m. 3 s., having covered the 117 miles from St. Germain to the sea in 5 h. 35 m. 13 s., being an average speed of 20.8 miles an hour over well made but hilly roads.

The landau, which is a rather slower

vehicle and carried one more passenger than the cab, covered the total distance in 6 h. 56 m. 46 s., being an average speed of 16.7 miles an hour.

After a day's rest at Trouville, the return journey was begun on Monday, M. Védrine still piloting the cab with two passengers on board and one of the shop foremen the landau with three passengers. The first 30 miles had been successfully covered when a car that M. Védrine was about to pass suddenly placed itself across the road and blocked the passage. The brakes had to be applied with such force to avoid an accident that a sprocket was ripped and the electric was unable to proceed. The landau covered the return distance without mishap, the first stage, Trouville to Evreux, 71 miles, being traversed in 3 h. 45 m., being about 19 miles an hour.

After recharging, the afternoon journey of 80 kilometers was covered in 2 h. 34 m., or at the rate of about 19.2 miles an hour. The total distance from Trouville to St. Germain, including time spent in recharging, was 9 hrs. 19 m., being a gain on the total time spent on the outward journey, which was 9:41:46.

Now M. Krieger, head of the well-known company of that name and a business rival of M. Védrine, has made the trip with two vehicles, one a closed coupé, having two seats, and the other an open landau, with four seats, the weight of the former being 3,498 pounds and that of the latter 3,938 pounds.

The actual start was from St. Germain, a few miles out of Paris, the coupé being sent away at 6.02 o'clock and the landau at 6.05 o'clock. From the commencement high speeds were attained, the first kilometer being covered in 1 m. 17 s., and the first ten kilometers in 14 m. 7 s., whilst a kilometer on a stiff hill was run off in 1 m. 58 s. The last ten kilometers of the first half of the journey were covered in exactly eleven minutes.

At Evreux the two vehicles had to be recharged. It was calculated that the average speed for the 52 miles between Paris and that town was 28.08 miles an hour. On the level ground before reaching Evreux the kilometer was covered successively in times varying from 1 m. 17 s. to 1 m. 22 s. The heavier landau arrived six minutes after its companion, the coupé.

Recharging the coupé occupied 3 h. 11 m. and the landau 3 h. 7 m., when both vehicles were started on the second stage of the journey. Rain, wind and heavy roads rendered running more difficult and the average speed was in consequence slightly slower than for the first stage.

Trouville was reached in 7 h. 21 m. 3 s. by the coupé, and in 7 h. 29.8 m. by the landau, which, deducting the time spent

recharging at Evreux, gives an actual running time of 4:10:13 and 4:22:8, the second half of the journey being covered by the coupé at an average speed of 28.05 miles an hour. In order to prove that his batteries were not run out, on arriving at Trouville M. Krieger covered a distance of 500 meters standing start in 29 2-5 seconds, an average of about 38 miles an hour.

Whilst this interesting run was being carried out, another and similar performance was being made by M. Védrine. The two electric automobile constructors, Védrine and Krieger, have not seen "eye to eye" lately, and in view of Krieger's attempt to lower Védrine's record, the latter resolved to take the wind out of his rival's sails by quietly leaving Paris ten minutes after him and arriving first at Trouville. He succeeded.

Starting from St. Germain at 6:12 o'clock with a four-seated enclosed coupé, weighing 3,960 pounds, including 1,540 pounds of accumulators, the Védrine car reached Trouville at 12:42 o'clock, thus arriving 40 m. 3 s. before its rival, which began the run with a 10 minutes' start. Védrine managed this by running right through from Paris to Trouville without recharging, the total distance being about 120 miles. The actual running time of the Védrine car was, from St. Germain to Trouville, 6 h. 30 m.; averaging about 18 miles an hour.

There is much complaint that bicycle riders and drivers of vehicles of almost all kinds do not carry lights at night. Few of the automobilists offend in this respect, and it is only fair that other vehicles should carry lights as well as they.—Sayville (N. Y.) *News*.

An automobile race meet will be held in connection with the State Fair at Salt Lake City this fall. An afternoon will be devoted to the sport, and the events will be run under the auspices of the Salt Lake Automobile Club.

## De Dietrich Car Wins the Pyrenees Cup.

### Defeats Mercedes Cars in Same Class by More than 1,000 Points—Brouhot Team Captures Regularity Cup.

By Our Own Correspondent.

PARIS, Aug. 29.—The last two days' runs for the Pyrenees Cup must have brought some changes into the final classification. On most of the previous days a maximum speed had been fixed by the jury, owing to the difficult roads being rendered slippery by rain. On the finishing days no such restriction was necessary, and as speed, together with regularity is considered in the classification, some very fast runs were made. The seventy-five miles to be covered on the seventh day of the tour were over fairly level roads, well guarded by troops, with, in several places, barriers as in the Gordon Bennett race; and, despite the fine rain which fell, averages of 40 miles an hour were maintained by many of the competitors.

The last day's run, from Pau to Toulouse, a distance of 125 miles, the first fifty of which were over ascending ground, with a few very steep hill climbs, and the remainder a gradual ascent to Toulouse, also witnessed high speeds, some of the 60-horsepower automobiles running at times at 50 miles an hour.

Only one incident marked the day's tour. A portion of a descent had been neutralized, and in consequence it was forbidden to overtake a preceding car. As the road appeared to be excellent, many of the competitors were annoyed at the speed restriction and broke the regulation, with the result that when the halfway halt was made there were numerous protests. After the cars were restarted an exciting struggle was witnessed between Cormier, the famous tourist of De Dion frame, and a Berliet car, the two running a neck-and-neck race for two miles at a speed of over forty miles an hour. It was

a fine sight for the spectators gathered along the road, but the dust that was raised did not add to the comfort of the chauffeurs.

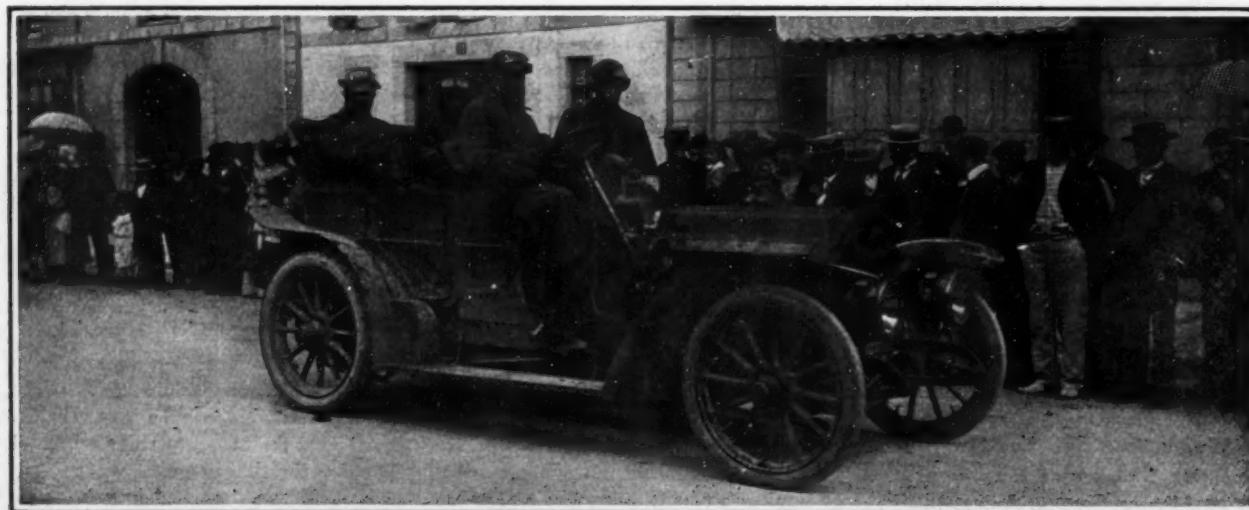
The fastest speeds were attained by the 40-horsepower De Dietrich driven by Sorel and a 60-horsepower Mercedes conducted by Bary.

An Ariès automobile driven by Coquart, while taking a turn at close upon forty miles an hour, was suddenly obliged to swerve in order to clear a small cart. The machine skidded, struck a tree, cutting it in two, and then overturned in the ditch. Two hours later the automobile was again running; the end of the axle bore the impress of the tree, but otherwise no damage had been done.

The finish of the tour was about seven miles out of Toulouse, and here all the cars were drawn up and sent in procession into the town in the order in which they had arrived. A double line of infantry and artillerymen lined the whole distance, and they were necessary, so great was the throng pressing on the roadside to see the automobiles pass.

One had not to wait long for official results, thanks to the good organization of the event; and the following day, in the presence of a crowd estimated at 50,000 persons, including no fewer than five members of the French Cabinet, prizes were distributed.

The 40-horsepower De Dietrich driven by Sorel—a winner in this year's Delhi-Bombay tour for the same concern—carried off the Pyrenees Cup, with 5,356 points, in the general classification, open to cars selling at \$4,800. In his own class he had as competitors M. Bary's Mercedes, with 4,407 points; Baron Henri de Rothschild's Mer-



SOREL, THE ANGLO-INDIAN, AT THE WHEEL OF DE DIETRICH TOURING CAR WHICH WON PYRENEES CUP.

cedes, with 4,267 points, and M. Mercy's Gladiator, with 3,851 points. Only once in the seven individual daily runs did the winner fail to finish first.

In the fuel consumption test the De Dietrich also stood at the head of the list.

The winning car is of the 1905 model, with four cylinders of 4.9 inches bore and 5.5 inches stroke, with an actual horsepower of fifty-two. There are four speeds and reverse, with sliding-gear transmission and drive by side chains, cone clutch of large diameter, and sparking by magnets. The tires used were Michelin, 870 by 90 on front wheels and 880 by 120 on rear, fitted with Samson non-skid bands.

The Regularity Cup, for team of three cars, was won by Brouhot with 14,973 points; De Dion-Bouton came next with 14,438 points, and Peugeot third with 12,283 points.

Fifty-three out of the sixty-four starters finished the 812 miles of the tour, the first fifteen in the general classification being:

	Points.
1. Sorel (De Dietrich), \$4,800 class.	5,356
2. Belleville (Brouhot), \$1,600 to \$2,400 class.	5,242
3. Didier (De Dion-Bouton), \$1,600 class.	5,038
4. Ballot (Berliet), \$2,400 to \$3,600 class.	5,028
5. Richez (Brouhot), \$3,600 to \$4,800 class.	4,944
6. Feuillot (Brouhot), \$2,400 to \$3,600 class.	4,889
7. Marechal (Brouhot), \$1,600 to \$2,400 class.	4,842
8. Coujet (Darracq), \$1,600 to \$2,400 class.	4,784
9. De Sambucy (Rochet-Schneider), \$3,600 to \$4,800 class.	4,759
10. Cormier (De Dion-Bouton), \$2,400 to \$3,600 class.	4,720
11. Baron Petiet (Aries), \$3,600 to \$4,800 class.	4,713
12. Bardin (De Dion-Bouton), \$1,000 class.	4,680
13. Laureau (Clément), \$1,600 to \$2,400 class.	4,603
14. Gillet (Fouillaron), \$1,000 class.	4,553
15. Gauthier (Rochet-Schneider), \$3,600 to \$4,800 class.	4,532

Sorel, who won in the De Dietrich, is an Anglo-Indian. In addition to winning the Delhi-Bombay Cup in India he recently secured a good position in the commercial vehicle competition of the Automobile Club of France with a De Dietrich entry. He was accompanied in the Pyrenees tour by the Maharaja of Tikari.

They're telling of a Jackson county farmer who found an auto horn in the road one day and took it home and taught the chickens to recognize its honk as their feed call. Instead of calling them in the old-fashioned way the farmer or his wife would blow the auto horn. One day an automobilist passed the farm, going about fifteen miles an hour and tooting his horn. The chickens near the house took after the auto, and fourteen hens and three roosters ran themselves to death behind the machine.—Milton Telephone.

## Details of Eliminating Trials Settled.

### Twelve Cars Will Compete for Places on American Vanderbilt Cup Team--Descriptions of the Racers.

THE order in which the competing cars will be started in the American elimination trials for the Vanderbilt Cup race was decided by drawing lots at the Automobile Club of America, New York, on Monday evening, September 11, with the following result:

TABLE OF STARTERS.

AMERICAN CARS THAT ARE ENTERED FOR THE VANDERBILT CUP ELIMINATING TRIALS SEPTEMBER 23 IN THE NUMERICAL ORDER OF STARTING.

No.	Name	H. P.	Entrant	Driver
1....	Haynes	50....	Elwood Haynes, Chicago A. C.	Nutt
2....	Pope-Toledo	60....	A. L. Pope, Hartford A. C.	Dingley
3....	Matheson	40....	L. M. Palmer, Jr., L. I. A. C.	Mongini
4....	White	40....	R. H. White, Cleveland A. C.	W. C. White
5....	Locomobile	90....	Dr. H. E. Thomas, A. C. A.	Tracy
6....	Christie	60....	James L. Breese, A. C. A.	Owen or Robinson
7....	Royal Tourist	40....	E. D. Sherman, Cleveland A. C.	Jardine
8....	Thomas	60....	H. S. Houpt, Buffalo A. C.	Roberts
9....	Franklin	60....	E. H. R. Green, Dallas A. C.	Winchester
10....	Matheson	40....	C. W. Matheson, A. C. A.	Cooper
11....	Premier	60....	G. A. Weidley, A. C. A.	Weidley
12....	Pope-Toledo	90....	A. A. Pope, A. C. A.	Lytle

The drawing was done in the same manner as the drawing for the order of starting in the race itself last year. A preliminary drawing was held to determine the order of precedence in the main drawing, and each man drew in his turn. There was a good deal of good-natured chaffing over the fact that the two Pope-Toledo cars were spaced almost as far apart as the numbers would permit; and the two Mathesons also drew numbers a long way apart. A number of the drivers were absent, and others drew for them.

Immediately preceding the drawing the Cup Commission held a meeting behind closed doors, at the conclusion of which the announcement was made that the distance for the elimination trials would be only four laps, or 113 1-2 miles, instead of being the same length as the race itself, ten laps, or 283 miles, as had been determined a short time ago. While the shortening of the distance may have a marked effect on the showing of some of the candidates, it does not necessarily follow that the final result will be affected, for the commission has reserved the right to select as cup defenders the five cars that it considers most suitable, regardless of position at the finish.

The trials will commence at 5 o'clock on the morning of Saturday, September 23, and will be over at 8 o'clock A. M. The racing cars will be allowed on the course every morning from 5:30 o'clock to 7:30 o'clock, but at no other time previous to the trials. Robert Lee Morrell, chairman of the A. A. A. racing board, gave the drivers a sensible little talk on the subject

of fast driving, requesting them to be particularly careful not to cause any ill-feeling among the residents along the course or those who might drive over it, by tearing through villages at high speed or dashing past horses or pedestrians on the road. Mr. Morrell stated that while there were no

police traps on the course, he had seen to it that the road would be carefully watched, and any driver making himself obnoxious in the manner referred to would be disciplined, and would probably be disqualified and rendered ineligible for both the trials and the race itself. Touring cars may be used at any time for the purpose of studying the course; but the same rules with regard to careful driving hold good as with the racers.

Walter Christie's long figure was seen moving around the club rooms with a slight limp. Reports had been circulated that Mr. Christie had been seriously injured when the heads of the cylinders of his rear motor blew out at Atlantic City; but he personally and cheerfully denied anything at all serious. The rear motor of the car will be removed and its place taken by a large gasoline tank which will assist in maintaining the even distribution of weight. The absence of half the power plant will reduce the power of the car from 120 to 60 horsepower; but Mr. Christie's intention was to use but one motor anyway, so that the accident does not affect the entry. The car will not be driven by Mr. Christie; either George Robinson or W. Owen will be at the wheel.

#### THE WHITE STEAMER.

The White steam car will be on the course this week, and will probably be driven by Walter C. White instead of Webb Jay, whose recent accident puts him out of the running for the time. This machine has not yet been exhibited to the public; but according to a statement made some

time ago by Webb Jay, it is very similar to the track racer, having a pointed bonnet containing the water tank in the extreme forward end. The power plant is similar to the regular White outfit, but more powerful; and the drive is direct to the live rear axle by propeller shaft. The big cylindrical gasoline tank is placed behind the driver's seat. It will have the characteristic White condenser in front.

#### MATHESON CARS FOR THE RACE.

The two Matheson cars are twins, being exactly alike in every detail. While they are special racing cars, they embody the main features of the Matheson touring car for 1906. They have 40-horsepower motors with cylinders of 5 inches bore and 6 inches stroke. The most important difference between the new model and the 1905 type is that a three-speed sliding gear transmission is used in place of the individual clutch system which has heretofore been favored by the builders of this machine. Both cars will be on the course at the end of this week.

#### POPE TOLEDO MACHINES.

The two Pope-Toledo cars entered for the Vanderbilt Cup elimination trials—one to be driven by H. H. Lytle and the other by B. F. Dingley—are much alike in their general features; they differ, however, in size, as Dingley's car, the same that he drove in the Gordon Bennett race, is of 50 horsepower, with four cylinders, while Lytle's, a new machine built specially for the Long Island event, is of 75 horsepower and has six cylinders. The smaller car was put into the Toledo shops on its return from abroad, and has been given a thorough overhauling under the personal supervision of Dingley, while Lytle has watched every step of the construction of his new machine. Each driver has minutely inspected every component part, and every possible precaution has been taken to avoid the slightest imperfection of material or workmanship. It is stated that both machines are made up largely of stock touring car parts, which are considered amply strong for the work.

An important feature in the Pope-Toledo cars is that they will have wire wheels for the sake of lightness; the wheels will have a diameter of 34 inches. The larger car is geared to a maximum speed of 90 miles an hour, and the smaller one to 80 miles an hour; it is understood that Lytle has already had his six-cylinder machine on the road, and that it has attained a speed of 75 miles an hour. The cylinders of both cars are of the same size—six inches bore and six inches stroke. Radiator, circulating system, clutches and steering gear are of the standard Pope-Toledo type. Wheelbase is 103 inches. Chrome steel is freely used in both machines. A large aluminum bonnet will cover the power plant of each car. It is anticipated that the machines will be shipped to their quarters on the Long Island course about September 14.

The racing cars will be under the personal management of F. M. Keeton, of the Pope-Toledo works, who is already on the ground making the necessary preparations for the arrival of the racing party and the cars. Six supply stations will be established around the course for the use of the Pope machines. There will be a main base of supplies, in addition to the smaller stations, where a very complete stock of all requisites will be kept.

#### PREMIER AIR-COOLED RACER.

A car that will be watched with much interest is the Premier air-cooled racer built for the cup race by the Premier Motor Mfg. Co., of Indianapolis. The Premier shares with the Franklin the distinction of being one of the first two air-cooled cars of the heavy-weight racing class ever built. It is but natural to expect that an air-cooled motor of 80 horsepower, which is the rating given the Premier engine, should possess features of novelty in connection with the means for cooling the cylinders; but an inspection of the engraving herewith reveals nothing more than the usual deep, thin flanges on the cylinders, heads and valve chambers. No fans are shown in the engraving, but as the car was photographed in an incomplete condition it is probable that a fan or fans will be used in the completed machine.

Apart from the engine, the car apparently contains no untried components. It has a pressed steel frame, hung on semi-elliptical springs; a propeller shaft and bevel gear drive; a three-speed sliding gear transmission, and a steel disc clutch. The seats are placed over the rear axle. The engine, however, is interesting in a number of details. The Indianapolis *News* gives the cylinder dimensions as 7 inches bore and 5 1-2 inches stroke, and the maximum speed as 1,500 revolutions a minute, at which speed the engine is said to develop 80 horsepower.

The manner in which the engine is supported on the frame of the car is peculiar. Notwithstanding the shortness of the stroke, the engine is very high and requires solid anchoring. For this purpose four arms are cast integral with the crankcase on each side and extend to the side frames, where they are bolted. These arms carry the bulk of the weight of the motor. The great mass of metal extending above these supports is steadied by wings, extending from the cylinders below the radiating flanges, to short pillars on the side frames, to which they are bolted. There are two of these steady wings on each side of each cylinder—that is, four to each cylinder. The arrangement and method of attachment of the wings is clearly shown in the engraving.

The valves are all mechanically operated and open through the cylinder heads. The valve actuating mechanism is all placed along the top of the engine. There are five A-frames, spaced equally along the tops of the cylinders; the method of securing the frames to the cylinders assists in giving rigidity to the latter. The A-frames carry

at their apex a shaft on which eight rocker arms oscillate—two arms for each cylinder. These actuate the valves. A second shaft, the camshaft, is carried in bearings in the centers of the frames. The camshaft, rotated by means not shown in the photograph, actuates the valves through the cams, short roller-carrying levers on which the cams make contact and the rocker arms. The rear end of the camshaft carries the timer in a position where it can be plainly seen by the driver. The carburetor is on the same side as the inlet valves, the left, while the exhaust leads down from the right-hand side of the motor.

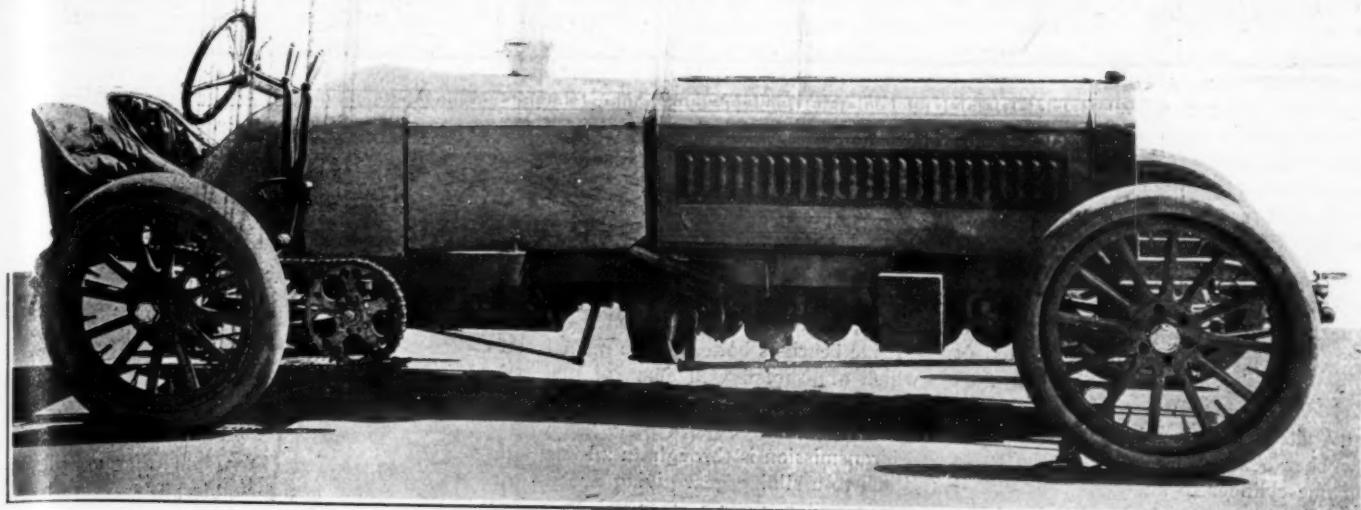
Ball bearings of the Mercedes type are freely used throughout the machine, and nickel steel is specified for many parts. The wheelbase is 112 inches. Wheels are 34 inches in diameter, with 4-inch tires; the spokes of the wheels are made of hickory.

Georg Weidley, superintendent of the Premier factory, designed the car and is quoted as estimating its speed at a maximum rate of a mile in thirty-two seconds on a straightaway course; he believes the machine capable of averaging more than eighty miles an hour under favorable conditions.

#### THOMAS SIX-CYLINDER RACER.

The special racer built by the E. R. Thomas Motor Co., of Buffalo, N. Y., for the Vanderbilt Cup race is a car that gives an immediate impression of being built for speed. The hood is extremely long, and the whole machine is low. The long, straight lines of the body and the placing of the seats at the extreme rear of the machine give it a decidedly racy and rakish appearance. The low hang of the machine is due to the fact that the springs are carried below the axles; and the bonnet, necessarily long to cover the six-cylinder motor, is made still longer by being extended backward, inclosing the space between the rear end of the motor and the dashboard, giving the car very long, clean lines.

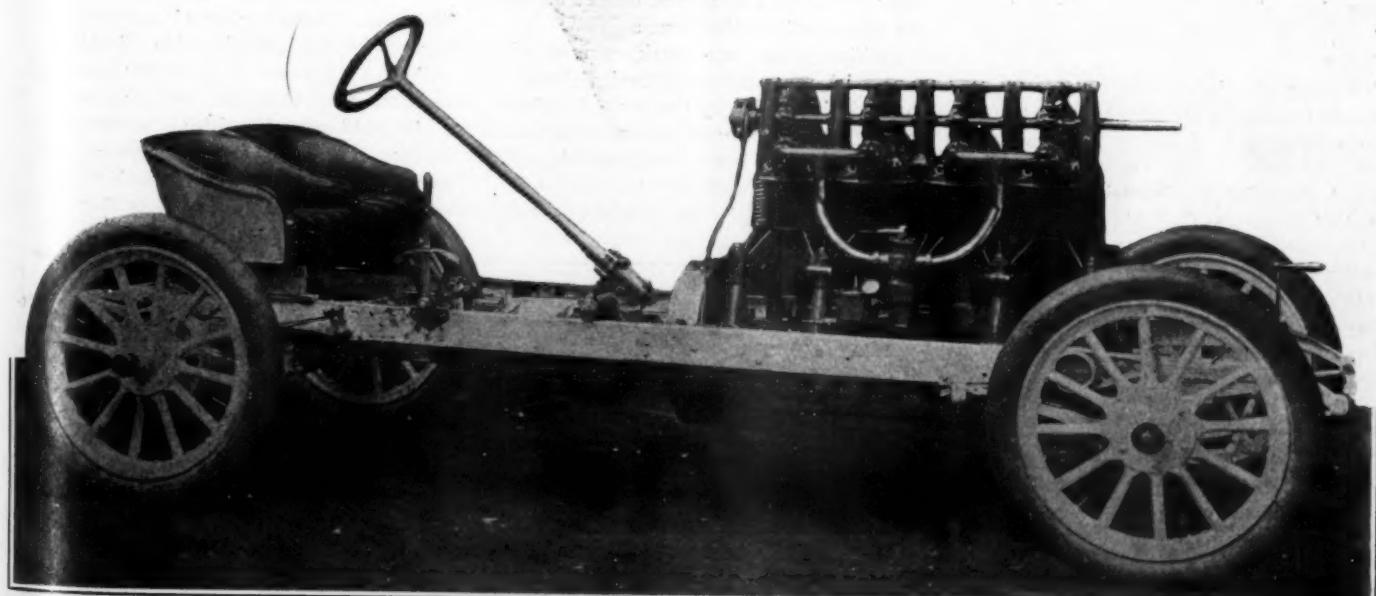
The motor of 60 nominal horsepower has six vertical water-cooled cylinders, separately cast, with integral hemispherical heads and water jackets. A noteworthy fact is that the inlet valves are of the automatic type. The cylinders are placed very close together, and have square bases through which pass the studs by which the cylinders are secured to the aluminum crankcase; there are four studs to each cylinder. Valves are all located on the left-hand side of the motor, the automatic inlet valves above the exhaust valves; the caps over the inlet valves are held in place by yokes and studs; the loosening of a single set-screw permits the yoke to swing aside, when the inlet valve and the exhaust valve may be removed through the same opening. Each pair of valves has its individual yoke. The fuel supply pipes rise from the carburetor on the opposite side of the engine; there are three branch pipes, each supplying two cylinders through a tee in its extremity. Flanges on the ends of the tees



SIDE VIEW OF THE THOMAS (BUFFALO) VANDERBILT CUP RACER FITTED WITH SIX-CYLINDER 60-HORSEPOWER MOTOR.



THE HAYNES VANDERBILT CUP RACER FITTED WITH 50-HORSEPOWER MOTOR.



CHASSIS OF PREMIER VANDERBILT CUP RACER FITTED WITH FOUR-CYLINDER 60-HORSEPOWER AIR-COOLED MOTOR AND SHAFT DRIVE.

→ Course →

Rocking Spaces  
5 6 3 2 1  
(from 1 to 40)Sides  
AislesAisles  
Aisles  
Aisles

ACCOMMODATION PLAN OF THE GRANDSTAND FOR ELIMINATION TRIALS AND VANDERBILT CUP RACE ON LONG ISLAND.

are bolted to similar flanges on the inlet valve caps.

The cooling water is distributed to the jackets by a pipe running along the top of the motor and communicating with each jacket by a short tee; the pipe is composed of alternate joints of rubber hose and metal, the rubber being used to bridge the space from one cylinder to another. The circuit is completed by a metal pipe running along the right-hand side near the bottoms of the water jackets and leading to the gear pump placed at the front of the engine and driven by a two-to-one gear; the pump is capable of delivering twenty gallons a minute, and pumps into a honeycomb radiator containing seven gallons of water. The radiator is of peculiar shape; instead of having its lower edge on a level with the top of the frame of the car, as is the usual practice, it is narrowed and continued downward for a distance nearly equal to its height above the frame, thus giving a very large cooling surface and presenting a distinctive appearance.

Lubricating oil for the motor is fed into the crankcase by a force-feed oiler on the dashboard; and though all parts of the motor are lubricated by splash, chain oilers are provided on the crankshaft bearings and force feeds are connected with the cylinders as well. Crankshaft bearings are all of white bronze, 2 5-8 inches in diameter; the cranks are set at sixty degrees.

Each piston is fitted with five packing rings, four above the piston pin and one below, the lower ring acting as an oil distributor.

The long wheelbase of the car, 117 inches, necessitates a long frame; in order to prevent sagging and springing the side members are stiffened by angle steel braces riveted along in the channels. The motor is bolted directly to the main frames, so that

the necessity for sub frames for this purpose is avoided. The countershaft that carries the driving-chain sprockets runs in outside bearings bolted to the main frames, which are spread well apart at that point so as to give a good support to the countershaft.

Transmission is through an all-metal disc clutch to a sliding gear giving two forward speeds and a reverse, operated by a lever on the right-hand side of the car. Both main and countershafts of the gear run in ball bearings, and the gears run in oil; a lead from the lubricator on the dashboard keeps the gearcase supplied with oil. The rear axle is of the "dead" type, the wheels being driven by chains from sprockets on the countershaft.

A worm and sector steering gear is employed; the steering wheel is placed in the position peculiar to racing cars. On the right-hand side of the steering wheel column is the ignition lever, and on the opposite side the throttle lever. A lever on the right-hand side, beside the gear lever, controls the brakes, which consist of bands contracting on drums on the rear wheels.

All the wheels are 32 inches in diameter, of the artillery type, and heavily built. The clincher tires are 4 1-2 inches in diameter on the rear wheels and 3 1-2 inches on the front wheels. All the wheels run on roller bearings. Hand forgings are used for the axles and the steering knuckles. The gasoline tank is cylindrical and contains 30 gallons; it is placed under the bonnet between the motor and the dashboard.

Ignition is by jump spark, current being supplied by two storage batteries placed on the right-hand side of the car. A Thomas timer, on the dashboard and driven by chain from the engine, is used in connection with a single vibrator coil.

The car is said by the builders to weigh

2,200 pounds, which is just four pounds less than the maximum weight permitted for cars of this class.

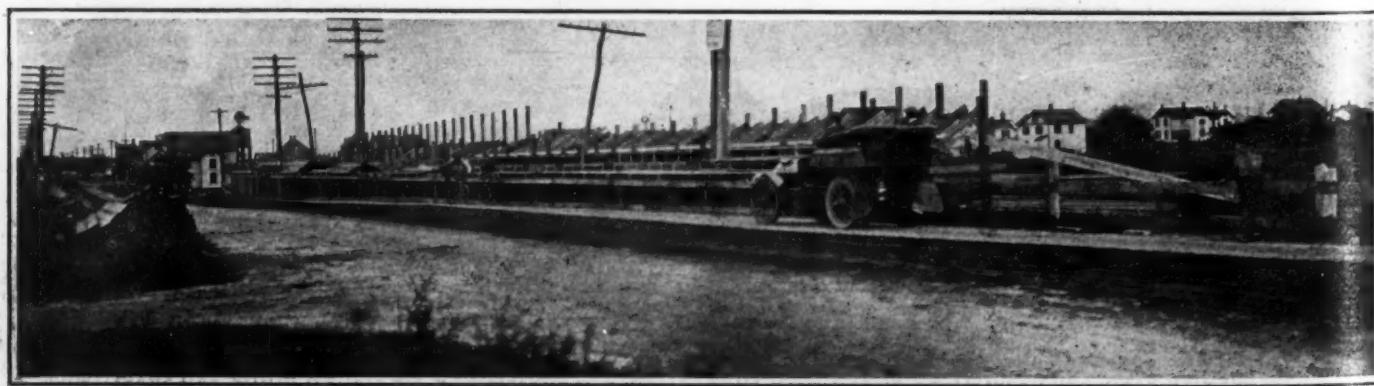
## Haynes Racing Car.

### Special Correspondence.

KOKOMO, IND., Sept. 9.—Kokomo will be represented in the Vanderbilt cup race by a special Haynes racing car of 50 horsepower, driven by Frank Nutt, with William Clark in the mechanic's seat. The car, its driver and mechanic are shown in the accompanying engraving. The machine has already been subjected to a number of road tests and has been found capable of a speed of seventy miles an hour. It was recently driven a mile in 1:24 on the half-mile track at Portland. The new racer has a very businesslike look, with its short open exhaust pipes sticking out through the side of the bonnet and the big, cylindrical gasoline tank at the rear, and it is believed that it will give a good account of itself.

## Grandstand Arrangements.

Diagrams of the grandstand that will be erected for the benefit of spectators of the Vanderbilt cup race have been issued by Alfred Reeves, secretary of the grandstand committee, 29 West Forty-second street, New York. The arrangement of the seats, boxes and parking spaces for cars is shown by the accompanying reproduction of the diagram. The press stand, which will be located on the opposite side of the road, will be an improvement on last year's arrangement. There will be long rows of desks and seats with aisles between, so that ingress and egress will be comparatively easy. The stand is to be a "double decker" and will serve to accommodate the official



LOOKING ACROSS THE JERICHO TURNPIKE, LONG ISLAND, AT THE GRANDSTAND NOW IN COURSE OF CONSTRUCTION.

## THE AUTOMOBILE.

stand, telegraph office and telephone booth, in addition to, the newspaper men's desks.

The prices of boxes, seats and the parking spaces will be the same for the elimination trials as for the race itself, viz., \$50 for a box seating five persons, or \$10 for a single box seat; \$5 for a reserved seat; and \$50 for a parking space for a car, which may carry its full complement of passengers.

## Brasier Backs Out.

*Special Correspondence.*

PARIS, FRANCE, Sept. 1.—The following letter has been received by the president of the Automobile Club of France, announcing the withdrawal of M. Brasier from the Vanderbilt cup race:

VILLERS-SUR-MER, FRANCE, Aug. 29, 1905.

Dear Sir:

Owing to the uncertainty of the regulations for the Vanderbilt cup race, of which we cannot obtain final decisions, and of the chance which this event would bring into play on a circuit ridiculously too short; considering also the obligations we have created towards our numerous clients by reason of our recent successes, whom we are anxious to satisfy, we shall withdraw from this new event this year, it being understood that, even in case of victory, the Automobile Club of France will withdraw for 1906, as has already been announced by its council.

I have pleasure of informing you of this at once in order to allow the others qualified by the eliminating races to prepare in time if they wish to do so.

(Signed) BRASIER.

## Make-Up of French Team.

*Special Correspondence.*

PARIS, Sept. 1.—With the Brasier cars already eliminated from the French Vanderbilt race team, the list of probable starters now stands as follows: 1., De Dietrich (Duray); 2., Renault (Sizs); 3., Darracq (Wagner); 4., Panhard (Heath); 5., Hotchkiss (Le Blon).

Heath will be certain to avail himself of the opportunity of again competing for, or really defending, the Vanderbilt Cup; but the Hotchkiss car is a very improbable starter. The firm had never for a moment imagined that they would be called up to form part of the French team, and with the date of sailing only about three weeks off it would be almost impossible for them to be ready in time, even were they anxious to compete. In this case the fifth place will be taken by Darracq, who asks for nothing better than to send two cars to compete on Long Island. The driver will in all probability be Hémery.

At the time of writing official information has not been received at the Darracq factory advising them of their right to engage a second car in the race. All, however, is activity, and M. Darracq can be relied upon to move heaven and earth to have his complete team ready to sail by the proper date.

The De Dietrich and the Renault drivers, Duray and Sizs, together with their two mechanics, have booked their passages on *La Lorraine*, sailing from Havre on September 23. Each driver will bring with him



M. BRASIER, THE FRENCH DESIGNER.

two automobiles. The Darracq firm have also the intention of sending their drivers on the same date.

## Harmsworth Cup Race.

The Harmsworth Cup race—or, to give it the full benefit of its official title, the race for the British International Cup for Motor Boats—took place on Monday, September 11, in Arcachon Bay, on the coast of France, England winning with *Napier II*, and also taking the second and only other place with *Napier I*. France was the only other country represented, M. Thebron's *Mab*, a late entry, being the French craft; but she dropped out before the end of the contest, as did also the third English boat, *Brooke*, a 40-foot boat with a 6-cylinder motor of no less than 300-horsepower. America was not represented. Two American boats, *Dixie* and *Challenger*, were entered; but *Dixie*'s owner apparently preferred to keep his boat in New York for the forthcoming National Motor Boat Carnival, while *Challenger*'s career seems to be ended. Her motor has been installed in a sailing yacht, and the future use of the hull is uncertain.

The 30-mile course was covered by *Napier II*, the winner, in 1:32:26, or at the rate of a little less than 19 1-2 miles an hour. The time for *Napier I* was 1:33:32.

Arcachon Bay is said to be rather shallow and full of rocks and shoals, so that it is not an ideal place for auto-boat racing. Fine weather prevailed.

The automobile is making its way to the ends of the earth. In the upper part of Transkei (Kaffirland) a service of motor cycles has recently been established, ridden by natives, to carry the mails from Mount Frere to the outlying stations, and so on to Kokstadt, a distance of seventy miles.

## Auto Boat Carnival.

Auto-boat racing of the highest order will be seen on the Hudson River in New York harbor on Thursday, Friday and Saturday of this week, September 14, 15 and 16, if the promises made by an entry list of nearly forty of the best boats in the country are fulfilled. Among the entries for the National Motor Boat Carnival are such craft as the new Western boats, *Winton* and *Six-Shooter*—the latter an Olds production; *Dixie*, with 150-horsepower motor, said to be capable of doing 31 miles an hour; *Den*, the new Herreshoff craft, much heralded and little seen, but credited with 40 miles an hour; *Shooting Star II*, the Lozier boat that won the Bourne trophy at the Thousand Islands; also *Flying Dutchman III*, *Panhard II*, *X P D N C*, *Veritas*, *Skeeter*, *Wizard*, *Durno*, *Rosebud* and others, including a large fleet of cruisers.

Racing will commence at 10 o'clock each morning, the starting point being off the foot of West Ninety-seventh street, New York City. Two triangular courses have been laid out, one of six and a half and the other of ten nautical miles. Thursday morning will be devoted to racing the cruisers and open boats, and in the afternoon the racers will be sent out. A long-distance race, from the starting point at Ninety-seventh street, up the Hudson River, to Poughkeepsie and return, will be the sole event on Friday. Saturday will be given over to a series of races for boats of all classes.

Interference with the racers will be guarded against by two United States revenue cutters, and all outside craft except the official steamer *Sirius* will be kept at least 200 feet away from the course.

A number of distinguished naval and army officers and citizens have accepted invitations from the officials in charge of the regatta to view the sport; among these are Rear Admiral Joseph B. Coghlan, U. S. N.; General Frederick D. Grant, General J. S. Wade, Hon. M. Linn Bruce, and Mayor George B. McClellan.

## MICHIGAN LEGISLATORS' JUNKET.

*Special Correspondence.*

BENTON HARBOR, MICH., Sept. 8.—A novel use of twenty automobiles was made here to-day by sixty members of the Michigan State Legislature. The members belonged to the lower house, and were in attendance at a "peach festival" given by Representative S. H. Kelley, of the first Berrien County district.

The object of the festival was to convince the law makers of the importance of the county as a fruit-growing region; Berrien County producing nearly 50 per cent. of the entire state production of five different fruits. The orchards were visited by three different modes of conveyance; namely, trolley cars, automobiles and a boat on the St. Joseph river, a different section being visited by each.

## Knox 6,000 Pound Air-Cooled Truck.

COMMENCING with a light delivery wagon consisting of a covered body placed on a regular pleasure car chassis, the Knox Automobile Co., of Springfield, Mass., has during the past two years turned out a number of successful commercial cars of various types, the latest of which, illustrated herewith, is a massive machine for a heavy class of work, having a rated capacity of 6,000 pounds, which it will carry at a maximum speed of ten or twelve miles an hour. The chassis is so designed that a body of any desired style can be fitted. Fig. 1 shows the machine with a stake truck body. Designs are being made for a passenger body of the familiar sight-seeing type, seating 28 persons; also for a transfer 'bus to carry eighteen persons inside and three on the front seat, with rear platform and side steps.

Generally speaking, the chassis is of the familiar Knox type, with the appearance of solidity and strength increased in keeping with the increased carrying capacity of the vehicle. The engine is a double opposed cylinder one, air cooled by the Knox threaded pin system; with cylinders of 5 inches bore and 7 inches stroke, and is rated at 16-20 horsepower. In keeping with the Knox design, but unusual for so heavy a machine, is the transmission, which is a heavy planetary one, giving two forward speeds and reverse. It is mounted on the engine shaft, and drives by roller chain to a countershaft carrying the differential; sprockets at the ends of the countershaft transmit motion to the rear wheels through chains.

The engine is rigidly secured to an angle steel sub-frame, and the sub-frame is supported on the main frame at three points. Two of these points are at the two rear corners of the sub-frame, where hinges are used; the third is at the middle of the front member of the sub-frame, and consists of a trunnion. Thus all twisting of the power plant is guarded against. This is considered particularly essential in a car that is expected to carry heavy loads over rough

roads. The possible springing and disalignment of the countershaft must also be guarded against, and with this end in view the countershaft, which is made very much the same as an ordinary divided axle, is supported at each end in ball-and-socket bearings. Fig. 2 shows the outer end of the countershaft on the left-hand side. These ball and socket hangers have a slight fore-and-aft adjustment, so that the chain tension can be regulated.

The main framing of the car is of heavy pressed channel steel 5 inches deep, with the spring hangers, brackets and other attachments hot riveted in place. The dead rear axle is a solid steel forging 2 1-2 inches square; the rear wheels run on roller bearings. The springs are of course very heavy. It will be noticed by reference to Figs. 1 and 2 that the front and rear ends of the rear springs are attached to blocks that slide horizontally in hardened steel guides. This can readily be done because the springs do not have to transmit any of the driving



Fig. 4.—Controlling Devices.

The machine tool carried on the platform weighs 6,800 pounds. The truck body is 12 feet long, back of the seat, and has a maximum inside width of 5 feet 6 inches; outside the truck measures 15 feet 6 inches long and 7 feet wide. The wheelbase is 111 inches and the tread 60 inches. Wheels are 36 inches in diameter, the rear wheels having 5-inch tires and the front wheels 4-inch tires, all of solid rubber. All the springs are semi-elliptic; the front springs are 40 inches long and the rear ones 50 inches long.

The manufacturers state that no attempt has been made to introduce innovations, the truck having been built in the light of the experience gained from the use of earlier trucks.

## Oxford Light Touring Car.

One of the many cars that have been placed on the market to meet the demand for a light weight, moderate priced touring car with ample engine power is the "Oxford," built by the Detroit-Oxford Mfg. Co., of Detroit, Mich. The machine has a double-opposed cylinder motor of 16 horsepower located in the front under a round-topped, vertical-sided hood; the cylinders are placed across the frame, the shaft lying fore and aft. A peculiar construction is used for the crankcase; instead of supporting the cylinders at their open ends, in the usual manner, the case extends outward and supports the cylinders at about the center of their length, the idea being that a more rigid engine is secured in this way. A three point suspension supports the engine, the bolts being attached to the crankcase. Crankshaft is of hand forged steel and the connecting rods of steel drop forgings. Valves are all mechanically operated and the cams are designed to give a quick opening and closing. The valves may be removed from the engine without disturbing the timing adjustments by removing two plugs and two pins. An automatic oiling device is incorporated with the crankcase cover, the lubricator dropping oil on

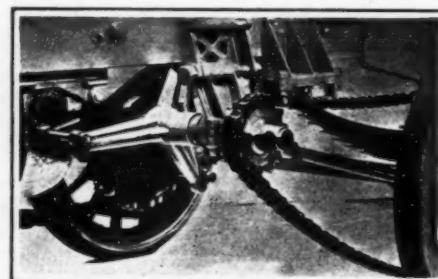


Fig. 2.—Countershaft End with Ball and Socket Bearing, Also Rear Spring Slide.

strain, the drive being through substantial radius rods.

The front axle is of I-beam section, 4 inches deep and 2 1-2 inches wide and the steering knuckles and connections are heavy and substantial, as may be seen by Fig. 3.

The brake drums on the rear wheels are 16 inches in diameter; they are steel castings, made integral with the rear sprockets and bolted to the wheels with 14 bolts each. The brake shoes are of cast iron, expanding within the drums, a steel cable connecting the brakes with a hand lever placed beside the driver's seat.

Fig. 4 shows the controlling levers, which are similar in arrangement to the levers on earlier Knox commercial cars. The top lever on the vertical column operates the spark and throttle; the lower lever the two forward speeds. The left pedal operates the reverse and the right pedal the service brake of the transmission. The expanding brakes in the hubs are applied by means of the side lever working over a quadrant. The steering is of the screw and nut type, irreversible.

With the stake truck body shown in the engraving, the truck weighs 4,800 pounds; the chassis alone weighs 3,800 pounds.

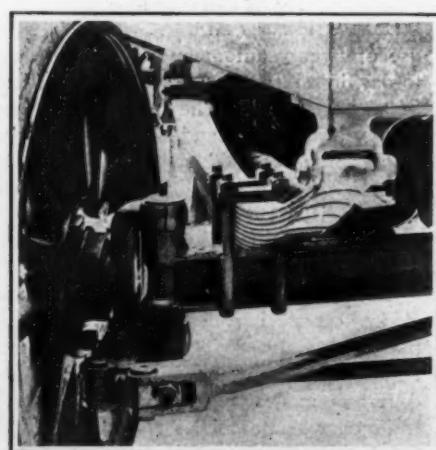


Fig. 3.—Steering Knuckle and Connections.

the camshaft, crankshaft and connecting rod bearings. Outside bearings are provided with compression grease cups. Gas is supplied to the engine by a carburetor of the float feed type.

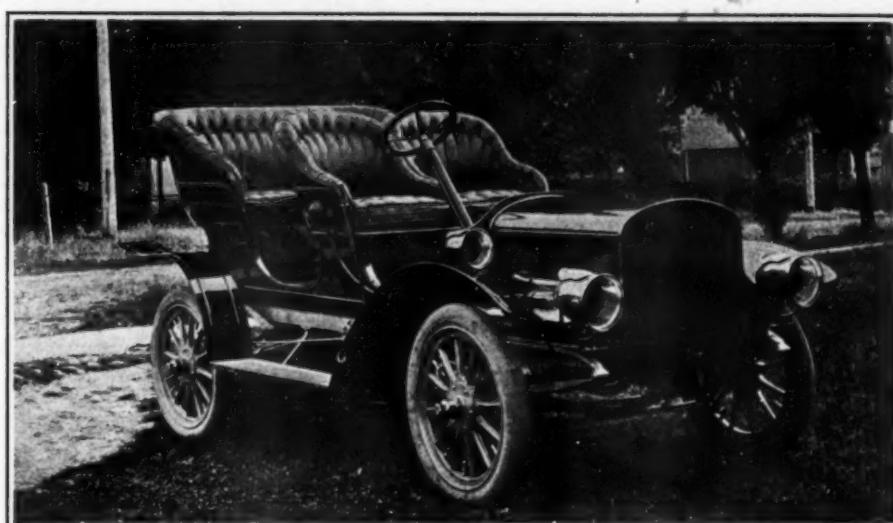
Power is transmitted to the rear axle through an individual clutch gear giving two speeds and reverse with the direct drive on the high gear. A single side lever operates the clutches of the gear. Throttle and ignition levers are placed on a quadrant under the steering wheel. A pedal accelerator is also fitted, acting independently of the lever on the steering wheel column.

Drive from the gear box to the live rear axle is by propeller shaft with a single slip joint. The ends of the live shafts of the axle are squared into the gears of the differential, which is of the bevel gear type. The differential case is a two-piece casting of aluminum; the live shafts, rear wheels and also the front wheels are provided throughout with roller bearings.

A solid drop forging of I-beam section forms the front axle. Semi-elliptic springs are used in front and full elliptic in the rear; the rear springs are not depended upon to transmit the driving strains, these being carried by stout radius rods. The main frames are of pressed steel and the cross frames of angle steel.

The steering gear consists of an internal gear and pinion, with provision for taking up wear. The brakes are located in the hubs and are of the internal expanding type, operated by a pedal placed near the foot of the steering wheel column.

A convenient feature of the Oxford car is the accessibility of the engine. The top of the hood is made to slide forward, thus uncovering the motor; all the working parts are on top, so that there is nothing about the engine to force the chauffeur to lie on the ground to make adjustments. Hand



OXFORD LIGHT TOURING CAR WITH DOUBLE-OPPOSED MOTOR IN FRONT.

slides in the hood are provided for the purpose of getting at the spark plugs. Lock nuts and cotter-pinned nuts are used throughout the car.

The starting device, which is permanently attached to the frame, relieves the compression when the crank is pushed home on the shaft and when the motor is started the compression is automatically restored.

Wheels are of wood, 30 inches in diameter and fitted with 3 1-2-inch clincher tires. The body is of the surrey type, with two individual seats in front and room for three persons in the wide rear seat. Seats are upholstered in dark leather and tufted. The rear seat is detachable, and can be replaced by a capacious box for use in touring when extra passengers are not carried. A special type of box, of extra large size, is supplied for the use of traveling salesmen who need a car to carry themselves and their samples from place to place.

The gasoline tank, containing sufficient fuel for 200 miles' running under favorable conditions, is carried on the front of the dash, under the hood; there is also a reserve tank under the driver's seat.

The car weighs 1,500 pounds and has a wheelbase of 90 inches and standard tread. The manufacturers state that the speed is variable from three to thirty-five miles an hour. Two oil dash lamps, an oil tail lamp, horn with screen and tube, oil cans and tools are furnished with every car.

Automobiles are becoming so numerous in Lake City that a common old horse will hardly turn around to look at one.—Wabasha (Minn.) Standard.

Sim Biskford is the first farmer in this vicinity to get an automobile, and after this he will bring his eggs to town in a two-seated Cadillac instead of a surrey.—Exchange.

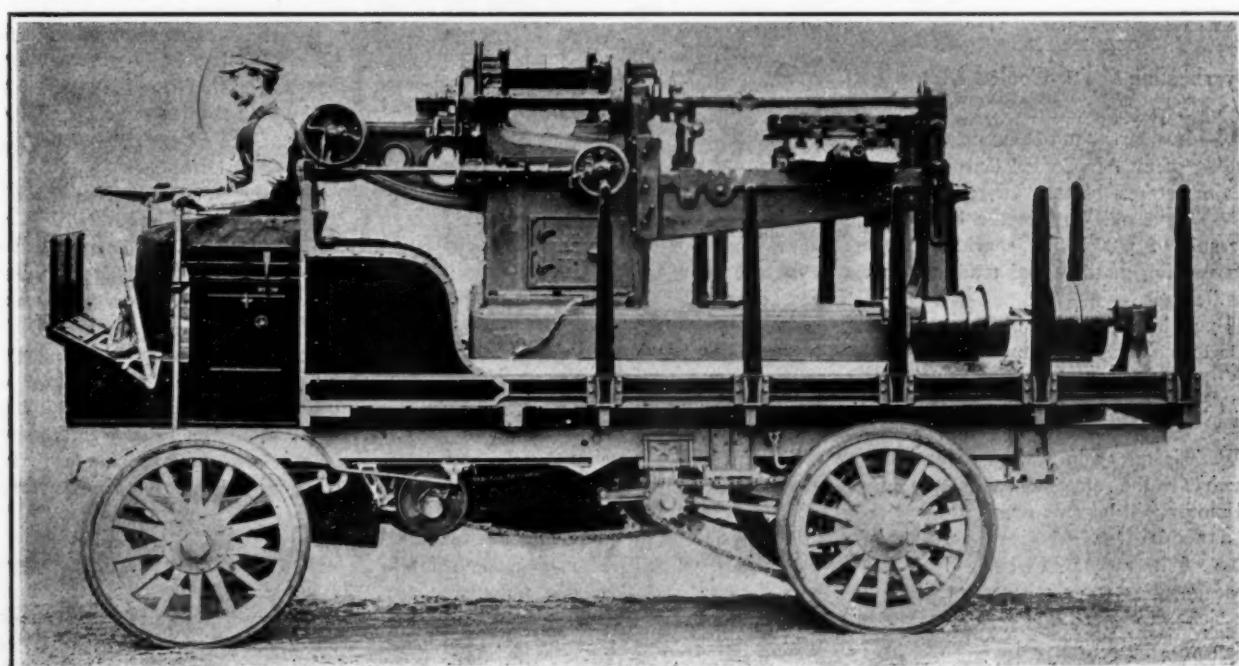


FIG. 1.—KNOX STAKE TRUCK WITH CAPACITY OF 6,000 POUNDS, FITTED WITH DOUBLE-OPPOSED AIR-COOLED MOTOR.

## Letter Box

### Success with Tire Chains.

*Editor THE AUTOMOBILE:*

[261.]—I read with much interest your editorial comments on the durability of attachments in the issue of THE AUTOMOBILE for August 24, and particularly that part in which reference was made to tire chains.

It may be interesting to your readers to hear of the satisfactory experience I have had with tire chains. I drove all last winter with the rear tires fitted with chain grips of my own devising, described in THE AUTOMOBILE early in 1904, but had trouble in procuring chains of suitable material. When the Weed chain tire grip, made by the Weed Chain Tire Grip Co., of New York, was introduced, I recognized it as what I wanted and procured a set. On December 8 I was caught thirty-five miles from home among the hills of western Pennsylvania in an eight-inch fall of snow. I applied the grips and drove home in three and a half hours, through drifts as much as eighteen inches deep. During the twelve days following that date I drove 843 miles, all in my practice, traveling over all conditions and grades of roads and up hills as steep as 25 per cent.

I have used the grips constantly for more than 1,200 miles, in snow, mud, slush and on hills up to 25 per cent. grade, and they give excellent satisfaction. They are fitted sufficiently slack to allow a little creeping, and there is not the least injury to my tires and they show no marks from the chains, notwithstanding the hard work and great mileage. Convenient to carry, they remove all terrors of being held up on soft roads. My requirements are of the most exacting character, and these grips fill them perfectly.

C. A. S.

Brownsville, Pa.

### Overheating of Air-Cooled Motor.

*Editor of THE AUTOMOBILE:*

[262.]—In your issue of August 24, under "Handling of an Air-Cooled Gasoline Car," Mr. Haines states that an "air-cooled motor \* \* \* will quickly become overheated as a result of a skipping spark." Again, that "a varying motor speed tends to cause heating."

Will you kindly have him explain why, in some terms a layman can understand?

G. W. T.

Perth Amboy, N. J.

G. W. T.'s query is a very natural one, inasmuch as the statement that an air-cooled motor will become overheated quickly as a result of a skipping spark is, on the face of it, rather illogical. It is one of those peculiar cases where practice and theory clash, and perhaps he is justified in asking why.

In the 25,000 miles of road experience I have had with air-cooled machines, I have

noticed that the motor became excessively overheated whenever the spark was irregular or skipped. But I am unable to say whether this overheating was present before the engine began to miss fire or not; the probabilities are that it was. Overheating, if caused by a skipping spark, would exist perhaps only in the cylinder or cylinders that were sparking properly, owing to the fact that they were overloaded and carrying the additional burden imposed upon them by the steppage of another cylinder from its usual work. Of course, the cylinder which is not firing or which is missing explosions has no fire in it, or less than the usual amount, and cannot overheat. I am unable to advance any technical reason as to why a skipping spark causes overheating, but in every instance where the engine missed fire it has overheated badly. Perhaps some of our more technical friends may be able to help G. W. T. out in this respect.

So far as the varying of motor speed causing overheating is concerned, this applies to machines fitted with carburetors that do not adapt themselves quickly to variations of motor speed. An improper mixture is the result and overheating will occur. In engines in which the carburetor is responsive enough to keep the motor supplied with a constant mixture at any speed, the overheating danger need not be considered.

H. B. HAINES.

### Experience with Solid Tires.

*Editor of THE AUTOMOBILE:*

[263.]—I have just read in the August 24 issue of your journal the inquiry of E. P. M., of Zebulon, Ga., relative to solid tires, and your reply.

After having become disgusted with pneumatics I have personally tried about all of the solid and semi-solid tires during the last two years, and am now enjoying the fruits of that experience. I now start on my trips over the most difficult roads without the slightest apprehension on the tire question, and, while I have settled on a particular make of solid tire as giving me the best satisfaction, I have no doubt there are others that are proving highly satisfactory.

In my earlier motoring experience I drove one of the 1902 cars having only a one-inch axle to carry a 1,250-pound car and its four passengers. I have driven the car hard and recklessly through the mountainous districts of Kentucky week after week, and its solid tires and one-inch axle are as good as ever to-day.

Prior to these experiences I entertained the common prejudice against solid tires, accepting the other kind without question. So far as the resiliency is concerned (and this seems to be the bugbear with the solid-tire critics, who, in nine cases out of ten, have never tried them), a pneumatic tire with sufficient air pressure for its own protection against rim cutting possesses too much resiliency for the actual welfare of the vehicle; there is a rebound from a jolt

that is more injurious to the car than the jolt itself. On the other hand, with properly adjusted springs and a solid rubber tire, not too broad, there is a soft, cushioned effect given to the jolt without that rebound which is so trying on the springs.

After exhaustive and continued tests of the solid tire on both light and heavy cars during the past few years, and having followed closely the experience of a number of other motorists similarly interested, I am convinced beyond a doubt that the solid tire is going to be the tire of the future. That they have not been more extensively used on light runabouts is accounted for in the fact that most any kind of a tire will give satisfaction for a while where there is a very light weight to support. Manufacturers of solid tires, recognizing this fact, have not catered to this trade particularly, but have looked more especially after the users of large touring cars.

Finally, in your last statement you claim a loss of power as one of the results of the use of solid tires. Now, if this is really the case—and I seriously doubt it—the loss has not been appreciable in my experience

R. M. F.

New Albany, Ind.

### Tire Question Paramount.

*Editor of THE AUTOMOBILE:*

[264.]—I think everyone will agree with you that the "racing game" has rightly lost its interest for the automobiling public. The questions which interest it now are tires and reliability—principally tires.

Would you open your columns to a debate on the experiences of users of solid tires versus users of pneumatic tires? I, for one, have been reading conflicting letters in your Letter Box column. I also am having difficulties with a new set of tires. Shall I make a change in favor of solid tires or not?

I venture to suggest that light on this tire question in general is what the public is most interested in of all things pertaining to the automobile.

C. B. H.

Toronto, Can.

The Letter Box department is freely open for a discussion of this subject by readers who have had personal experiences with the different kinds of tires; in fact, readers were invited only last week to write of their experiences with solid tires on pleasure cars. It should be kept in mind, however, that the requirements of owners differ greatly, and full details should be given as to type and weight of car, speed usually maintained, comparative comfort, loads carried, nature of roads traversed, and other factors.

If the automobilist is tempted to run unnecessarily close to a vehicle or a person in the road, he should remember that his "close shave" is likely to be converted into a more or less serious accident if the vehicle or person makes an unexpected move.

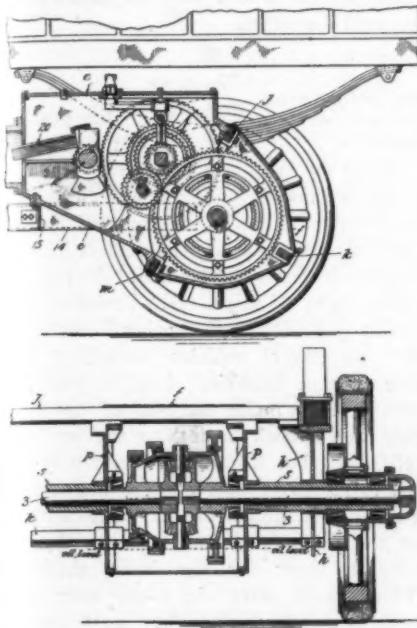
September 14, 1905.

# Patents

## Motor Truck.

No. 796,694.—Harry A. Knox, of Springfield, Mass.

This invention covers the framed casing for a double reduction spur gear transmission from a gasoline motor to the rear wheels of a heavy truck, as used in the new Atlas truck described in THE AUTOMOBILE for August 31. The side elevation shows the crankshaft 16, connecting rod 20, gears, and axle. The other view is a vertical section through the axle, showing how it and the casing and framework are related.



HARRY KNOX TRUCK CONSTRUCTION.

The spring pedestals *h* are steel castings, connected by transverse bars *j*, *k*, *m*, which also support the cast side plates *p* of the rear portion *f* of the casing. The remainder of *f*, being under no strain, may be sheet metal. Extending on each side through *p*, *h*, and the wheel hubs are massive fixed sleeves *s*, which carry the weight of the body and afford bearings for the wheels. The latter are driven by shafts *z*, which do not touch *s* and carry no bending load. The reach bars *z* are connected to the pedestals *h*, and also to the portion *e* of the casing by cross members *z*. Sliding gear speed changing mechanism is shown, with three forward speeds and reverse, but it is not part of the claims.

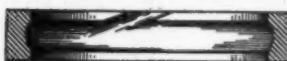
## Carbureter.

No. 796,712.—W. Fergusson and C. L. Shepp, of Buffalo, N. Y.

An automatic carbureter of up-to-date design. The main air stream enters the base of the fixed cone *k* and draws up around the adjustable spray nozzle *G*. The top of the cone is closed by the cap-shaped piece *L*, which has perforations *l* in the top, which are always open, and others in

## THE AUTOMOBILE.

the sides, which when the motor is at rest are closed by slipping inside the annular wall *k'*. The suction lifts *L* and partly or wholly opens the side perforations, and also causes *L* to uncover the triangular



SACHS BALL BEARING.

apertures *k'*, through which pure air can enter in greater or less volume—according to the suction—to dilute the mixture, thus preventing the latter from becoming too rich at high speeds. Pulsating of *L*, due to its inertia, is prevented by attaching it to the stem *m*, which works in the air dashpot shown. The float valve *b* is normally closed by the spring shown, and is opened by the weight of the float.

## Ball Bearing.

No. 796,871.—E. Sachs, of Schweinfurth, Germany.

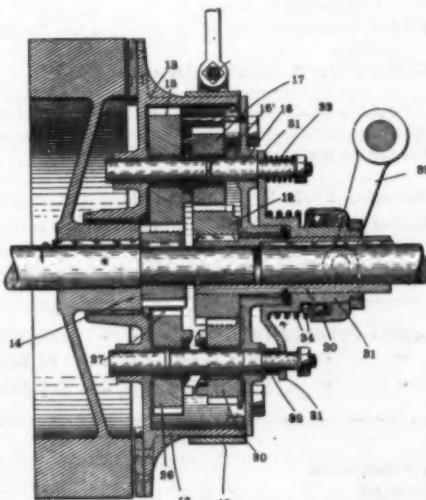
A two-point bearing designed to avoid the necessity of notching a race and filling the notch with a removable piece to permit insertion of the balls. The end is accomplished by using two notches, each flush with the track in which the balls run, and inclined in opposite directions, so that the races must be turned to introduce the balls. Presumably they are slanted so that to insert the balls they must be turned in the direction opposite to that in which the bearing is regularly to run.

## Planetary Gear.

No. 797,001.—F. H. Heitger, of Indianapolis, Ind.

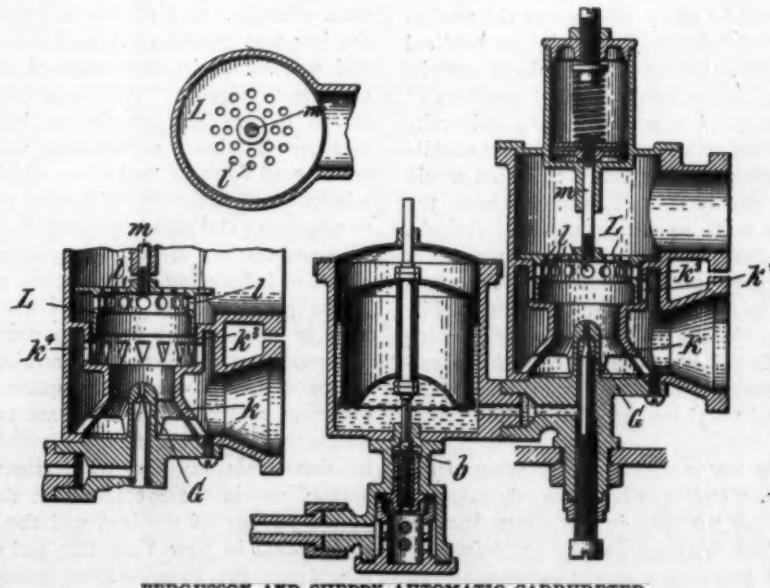
A planetary gear in which a single fric-

tion band is made to serve for both the slow forward and reverse speeds by the introduction of selective mechanism, which likewise operates the high speed clutch. In the drawing the power is transmitted from pinion *z* through *z* and *z* to *z*, and thence through the keyed sleeve *z*, for the slow speed. Casing *z* is revolvable on both shafts, as usual, and is held by band *z* for the slow and reverse movements. For the reverse, the transmission is from *z* through an intermediate pinion *z*, pinions *z* and *z*, to *z* as before. Pinions *z* and *z* are separate, but *z* is shifted to engage *z* by a claw clutch, its movement being derived from the yoke *z* through pin *z* and collar *z*. Similarly, the contrary movement of *z*—which is shifted by arm *z*—releases *z* and engages *z*. For the sake of compactness, *z* is not connected rigidly to *z*.



HEITGER PLANETARY CHANGE-SPEED GEAR.

and *z*, but engages them by positive pressure and releases them through the springs *z*, *z*. Leftwise movement of *z* beyond the position shown acts through spring *z* to force *z* bodily against the flywheel rim, locking the whole mechanism for the direct drive.



FERGUSSON AND SHEPP AUTOMATIC CARBURETER.

# THE AUTOMOBILE

VOL. XIII.

No. 11

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**A Financial View of the Automobile.** There are undoubtedly few persons connected with the automobile industry, and who have opportunities for observation, who have not been impressed with the absence of seriousness in the views of outsiders where these embrace the industry. Indeed, the superficial belief that the use of the automobile is a "fad" is held by a surprisingly large number of otherwise well-informed persons. This belief is not only prevalent among business men, but is held by many who follow the professions, and who might fairly be credited with intellectual acuteness. As a sample, not long ago certain influential members of the faculty of a great Eastern university decided not to adopt a course in automobile engineering, holding that such action would not be dignified, and would expose the teaching body to criticism, if not ridicule. Yet if there is any industry that needs a high degree of technical knowledge and skill in its development, it is the automobile industry. Whatever lead continental Europe may have gained is due solely to the laborious attention which the trained engineer, the chemist and the metallurgist have given to the problem.

On the material side, the showing of the fiscal year ending with June, 1905, ought to convince the man in the street that the automobile industry, while an infant in point of years, is a pretty substantial and well-developed addition to the American

industrial family. A very careful canvass has been completed by *Bradstreet's*, and is made the basis of an appreciative article in a recent issue of the bulletin of that authoritative financial agency. The result shows that during the year there were produced by 100 manufacturers 26,601 cars valued at \$34,650,500, and estimates of the capital employed in the production of those machines aggregate \$21,313,000. In the calendar year of 1904 there were produced about 17,500 cars, valued at \$22,000,000.

As a means of measuring the financial importance of the showing for the year ending June, 1905, it is interesting to note that the value of the output of cars is nearly equal to the net earnings of all the American railroads for the month of May, the total of which was \$34,974,074.

Another feature brought out by the investigation was the curious grouping of the plants, most of which are located outside the large cities, a fact which is often the subject of remark in the trade. In value of output the State of Ohio leads, and is followed in order by Michigan, Connecticut, New York, Wisconsin, Massachusetts and Pennsylvania.

In considering the mercantile importance of the automobile, the value of the domestic output must be supplemented by the cost of the imported machines, which in 1904 reached a total of \$1,294,160. This year will show considerably larger figures.

In summing up, *Bradstreet's* says: "It (the automobile) has passed out of the domain of experiment, and is emphatically not the toy which some critics of it would like to have people believe. Certainly no such expenditure for a single toy has ever before been recorded." It is gratifying to note the growth of a proper appreciation of what the automobile means on the industrial side, at least.

**Anti-Graft Law Now In Effect.**

On September 1 the Saxe anti-graft law in New York State became effective. Our readers will recall that the law was passed at Albany last spring, and was signed in the month of April by Governor Higgins. Although often referred to as the "anti-tipping law," the measure is aimed particularly against a widespread form of "graft" in which commissions and "rake-off" discounts are paid to employees and agents without the knowledge and consent of the employer, with the object of influencing purchases.

The possible effect that this law might have in stopping the annoying practice of unscrupulous chauffeurs in making purchases of cars, fittings and supplies, and in ordering repairs of establishments from which they could secure the greatest profit to themselves on the transactions, was pointed out in these columns at the time of the passage of the law, and the organized dealers in New York City and owners throughout the State holding membership in clubs were shown how refuge could be

taken behind the law to put a stop to the practice. Now that the law is operative the members of the New York Automobile Trade Association are considering the advisability of taking concerted action to refuse to pay "commissions" to unauthorized persons on sales. Since the penalty for "grafting" works both ways, both the giver and taker of a bribe being liable to heavy fine, any garage keeper can quickly be forced into line with the organized dealers by bringing violators of the law into court. By rooting out this evil in the trade, free and open competition will result; and in time the private purchaser and owner of an automobile should secure the benefit of lower first cost and reduced maintenance and repair charges.

**Electric Autos for Interurban Service.**

Something of a revelation as to the possibilities of electric pleasure vehicles in long distance road traveling under favorable conditions is contained in the account of the recent trials of Krieger and Védrine coupés and landaulets between Paris and Trouville, published in the preceding pages of this issue. Under suitable conditions of road and weather it was shown that passenger vehicles weighing with their storage batteries close to two tons were able to make the run of 130 miles from the French capital to the sea over well paved but hilly roads, with only one stop to recharge the batteries, and at rates of speed averaging from 16.7 miles an hour for the slower vehicles to more than 28 miles an hour for the faster machines. These speeds were not taken over short stretches of level road, but were average speeds for distances of more than fifty miles.

A Krieger coupé, with two passengers, made the run of fifty-two miles from St. Germain, twelve miles out of Paris, to Evreux, in 1 hour 51 minutes, or at an average speed of more than 28 miles an hour, stopped 3 hours 11 minutes to recharge the batteries, and ran the remaining 65 miles to Trouville in 2 hours 19 minutes, making a total net running time of 4 hours 10 minutes for the 117 miles.

A four-passenger Krieger landaulet weighing 3,938 pounds covered the first 52 miles in 1 hour 54 minutes, stopped to recharge for 3 hours 7 minutes and ran the remaining 65 miles in 2 hours 28 minutes, covering the 117 miles in an actual running time of 4 hours 22 minutes. Then, just to show that the batteries were not run down, 500 meters were covered in Trouville from standing start in 29.5 seconds, or at the rate of nearly 38 miles an hour.

An even more remarkable battery performance was that of the Védrine four-passenger coupé, which made the entire run of 130 miles from Paris to Trouville without stopping for recharging at all, the total running time being 6 hours 30 minutes from St. Germain to Trouville, or an average speed of a little more than 18 miles an hour.

The electric vehicle has been looked upon as a town carriage only, but the battery improvement shown by such performances holds promise of a wider range of usefulness for this type of automobile. In many New England and Middle Atlantic states the roads are good enough and the cities close enough together to make the use of electric machines for interurban travel easily possible. In fact, at the time of the recent Glidden tour an electric stanhope was driven all the way from Boston up through Massachusetts and New Hampshire to Concord under its own power, notwithstanding many miles of the road were very hilly and sandy.



**Grim Death Enjoins.** A tempest in a teapot was caused recently in automobile circles by the announcement in the press that an injunction had been secured by the Association of Licensed Automobile Manufacturers restraining one W. J. Moore of New York from "making, using or selling" any automobile embodying any of the "inventions, improvements or discoveries" covered by the Selden patent. In a semi-official announcement sent out by the association, it was suggested that the action of the Federal court would be "likely to startle automobilists." It certainly seems to have had this effect, though, perhaps, not in the way intended.

The fact is that to the suit in equity instituted by the A. L. A. M. the respondent Moore, who was the owner of an imported car, did not make any answer, nor was he represented by any attorneys of record in the court. There being no person to contest the application for an injunction, the court granted it without any hearing or discussion of the merits of the suit—it was entirely an *ex parte* proceeding.

And while the mills of the Federal court were grinding, the respondent went away to Texas and there died. So, all things considered, this now famous injunction can hardly be considered a live issue—in fact it was stillborn.

The less humorous side of the affair is the hardship that the slovenly publicity which the daily press gave the proceeding may have worked upon the agent of the car in question in affecting his sales.

**Lost Springs** is strictly up to date, as it now sports an automobile—or, rather, John Gomer, our popular blacksmith, does. The insurance men are doing a rushing business, for everyone feels like they must have their lives insured while the devil machine is in town, for we might not hear its toot in time to scoot.—Marion (Kan.) *Headlight*.

**Out in Nebraska** the other day the sheriff jumped into his automobile and took after a bank robber who was riding a good horse. What is more, he caught his man. You may see "the passing of the horse" in this interesting episode, or, if you please, view it as a striking illustration of the opulence and style of Nebraska sheriffs.—*Exchange*.

## THE AUTOMOBILE.

### THINKS SWISS ARRESTS JUSTIFIED.

**Ex-Governor Brown, of Maryland, Although Arrested a Dozen Times for Exceeding Speed Limit in Switzerland, Says Authorities Are Right in Enforcing Law on Dangerous Mountain Roads.**

#### Special Correspondence.

BALTIMORE, Sept. 11.—Former Governor Frank Brown, of Maryland, has just returned from a two months' trip to Europe, where he spent most of his time traveling through France, Germany and Switzerland in a De Dietrich touring car.

"We traveled all over those countries," said the ex-Governor, upon his return to this city. "We went up the valley of the Rhine and visited all the principal towns in France and Switzerland, including, Lucerne, Aix-les-Bains, Zurich, Baden-Baden and others. We toured through the northern part of France and through the Black Forest of Germany. The roads in Europe, especially in France, are simply superb. Think of mile after mile of road without a curve and with scarcely a pebble! France is the automobilist's paradise, and everything is done there to encourage the sport—no rules against speeding to annoy, for everyone keeps to the right and accidents are unnecessary and infrequent.

"In Switzerland it is quite the contrary. There has been a great deal of criticism recently over the alleged actions of the Swiss authorities toward automobilists, and I have heard many bitter things said against them, but I think this country has heard only one side of the question. An American, say, is arrested over there. If he is a man of prominence, the papers in this country get hold of it and the 'roasting' process begins, but there is another side to the matter.

"While the general sentiment of the Swiss people seems to be against automobilists, I believe that the authorities are perfectly just and fair in their treatment of tourists, and that reports concerning unfair play and trumped-up charges for the express purpose of annoying automobilists are greatly exaggerated. It is necessary that the Swiss guard their roads well, and stop all illegal speeding. The roads run up and down, down and up, with a high mountain on one side and a steep precipice to river or lake, formed by the melting of glacial snows, on the other side. The beds of the roads are remarkably good but the roads themselves are very narrow and the curves are sharp and close together. The people use their thoroughfares, which are maintained at large expense, constantly, and there is no doubt in my mind or in the mind of anyone who has seen the country, that danger is extreme, and that the chances of accidents from over-speeding are ten to one unless the driver be a man of marked caution. The Swiss are merely protecting themselves and their families.

"Foreigners are touring Switzerland in great numbers. I saw more automobiles there in one day than I have seen in New York City in a similar period. I am sorry to say that few of them contained careful chauffeurs. Arrests are momentary occurrences. The authorities have their roads looked after by guards stationed at certain spots, and upon these men devolves the duty of arresting all violators of the law. If a person in a carriage holds up his hand and the motorist does not stop at once, he is promptly pounced upon. If he is exceeding the speed limit, he is taken in charge. The fines which are imposed by the magistrates

go, so it is said, to pay the wages of the guards and to maintain the roads.

"I was arrested in Switzerland something less than a dozen times," Mr. Brown, continued. "In fact, I think I was arrested every day I went abroad there. Each time I deposited \$40 collateral for my appearance next day, but I forfeited the money always, as time was precious. I am inclined to believe that few automobilists who are arrested return to be tried, and I think that the \$40 bail asked is looked upon as the fine. In every case I was arrested for illegal speeding, and, frankly, although I did not know it then, and speeding over the limit certainly was not intentional on my part, the charge was just. After a long, heavy climb upward, the relief upon reaching the top and the sight of the smooth road on the down grade is a temptation hard to resist, and I suppose I fell. I don't mean to say my speed was reckless—it certainly would not have been on the roads of France—but on the narrow, winding paths of Switzerland, mountains on one side, water on the other, almost any rate is dangerous, not alone to others whom you may meet, but also to yourself. The manager of a hotel in Lucerne was killed while riding in an automobile along a mountain path. In many places between, your machine and the glacier streams there is only a stone wall to the top of which runs the dirt of the road in a gradual up-grade. The hotel man, driving around a curve at pretty fast speed, threw on his brakes too suddenly, and skidded against the wall. The pressure crushed down part of the wall and sent his car over the precipice.

"I have no grievance against anybody for my treatment in Switzerland; indeed, if anything, my sympathies are with the people in their fair fight for their safety and the safety of their families. If automobilists were careful—and I take myself to censure, too—I know that Switzerland would hold out her hand and give the motor car glad greeting."

The ex-Governor will return to Europe within a month or six weeks and when he comes back to America again, he will bring with him the De Dietrich car and a French chauffeur. At present his machine is in a European garage awaiting the arrival of himself and his party.

### PITTSBURG TAX COLLECTION WAR.

#### Special Correspondence.

PITTSBURG, Sept. 11.—Levying a tax and collecting it are two different things, as Murray G. Livingstone, chief ordinance officer of the city of Pittsburg, has learned in trying to collect the tax lately levied on automobiles by the city. The owners regarded the tax unjust and fought it in the courts. There are estimated to be about 1,000 automobiles in the city. On fully 300 of these, it is reported, the tax has not been paid. The majority of the owners, however, decided to pay the tax this year and await legislation next year to relieve them of the added financial burden, but these 300 are going to be hard "comers."

Officer Livingstone says his chief trouble is in finding the right people upon whom to serve summonses issued against the delinquents. Apparently nobody owns an automobile when he goes after them. So many men have been out of the city and so many autos are being run and looked after by comparative strangers that there is some ground for the excuse. Not a few of the automobile owners, however, have flatly refused to pay the tax. Unless some fees come into the city treasury during the next two weeks, steps will be taken to force the delinquents to pay or give up all claim to automobile privileges.

September 14, 1905.

## GOOD RACING AT READVILLE TRACK.

**Bay State Associations' Postponed Meeting Decides Ownership of Herald and Moxie Trophies and Results in New Track Record.—Light Steamer Goes Through the Fence.**

*Special Correspondence.*

BOSTON, Sept. 9.—A new track record, the permanent ownership of the two principal racing trophies of this section decided, and several contests of the closest kind are, in brief, the results of the race meeting of the Bay State Automobile Association, originally scheduled for Labor Day, but on account of bad weather, postponed and held this afternoon on the Readville track.

As is almost always the case in postponed events, the attendance suffered, but the entries were more and better, if anything, than on the earlier date. There was a fair attendance, especially of automobilists, and the sport was excellent. Several events had that quality of uncertainty that makes a horse race interesting, and there were few walkovers due to cars going wrong.

Only one untoward event marred the day's racing. That was the wreck of the Stanley car, driven by Bert Holland, in the second heat of the ten-mile *Herald*

going for the champion in the final heat, but was beaten by a quarter of a mile. Durbin's Stanley was a half-mile behind at the finish.

The victory of Basle in the *Herald* Trophy race gives this cup to H. L. Bowden permanently, as he won the first race a year ago last spring at the Massachusetts Automobile Club races. Basle did not secure the trophy without a struggle, however, for both Durbin and Cedrino gave him a tussle. In the first heat it was nip and tuck, first between Basle and Crowell with a Stanley, and then between Basle and Durbin, also with a Stanley. In the sixth mile Basle and Durbin were on even terms and Basle with Bowden's 90-horsepower Mercedes won by only a quarter mile over the little steamer. The second heat went to Cedrino after Holland was wrecked and Hilliard dropped out at the end of eight miles. In the final Basle drove a pretty race and gained slowly and steadily over Cedrino, winning by three-quarters of a mile in 9:34.

Hilliard and the Italian came together in a ten-mile pursuit race. The Napier led for four miles, but went wrong and dropped out at the end of six miles. Cedrino's time for five miles was 4:55 3-5.

The Moxie cup for two-cylinder cars, is now the property of the Electric Vehicle Company. With a two-cylinder Columbia on Memorial Day, H. P. Maxim won the first race for the cup. With the same car

The ten-mile event for American stock cars was a close race and demonstrated the staying power of the steamer, for Frank Durbin, with a 20-horsepower Stanley, won in 12:11 over George G. Reed, with the 40-horsepower Stearns, and Harry Wolover, driving a 35-horsepower Columbia.

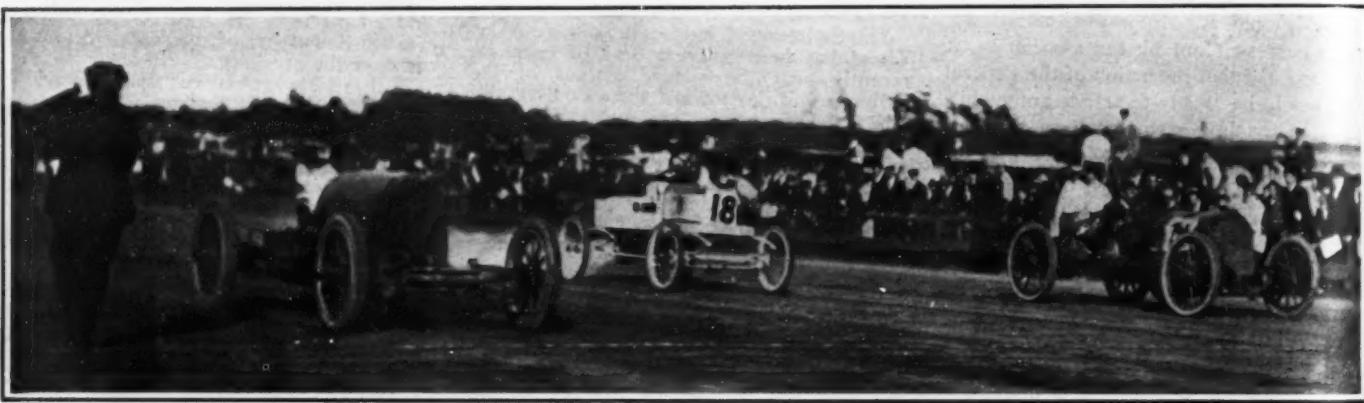
Reed won the five-mile race for four-cylinder cars not over 40 horsepower, defeating the Columbia and the Franklin.

Oldfield drove two exhibitions, one of three miles with the stripped touring car and one of five miles with the *Green Dragon*. The latter was driven when it was almost dark.

## STRAIGHTAWAY RACING CIRCUIT.

*Special Correspondence.*

PHILADELPHIA, Sept. 11.—Leading automobilists, of this city, in conjunction with the clubs at Atlantic City and Cape May, are quietly taking the necessary preliminary steps toward the formation of a beach-racing circuit, to include the two places named, with possibly Avalon and other places where short-distance straightaway races may be held. The idea is to have races at Atlantic City and Cape May twice a month next season, during June, July and August, and at the other places less frequently. To provide the necessary funds, it is proposed to build capacious stands, the



Barney Oldfield in *Green Dragon*.      Frank Durbin in *Stanley Steamer*.

START OF FINAL OF FIVE-MILE NATIONAL CHAMPIONSHIP RACE AT READVILLE TRACK, BOSTON, SATURDAY, SEPTEMBER 9.

trophy race. Holland had as opponents, Cedrino, with the Fiat, and Hilliard with the Napier. In the second mile at about the five-eighths post Cedrino was in the lead and Hilliard was second. Suddenly the steam car that Holland was driving was seen to wobble, then slow up and crash through the fence. Holland jumped or was thrown free and was uninjured, but the car was wrecked. The cause was a collision between the front wheel of the Stanley and the rear tire of the Napier. As the crowd rushed upon and across the track Cedrino and Hilliard were stopped but afterwards finished the heat.

A new record for two-cylinder cars was made by J. W. Ward with a stripped Buick. He went against his record of 6:28 2-5 for five miles, and on the oiled surface succeeded in cutting down the mark for the distance to 6:19 3-5. The new track record was for one mile and was made by Barney Oldfield in the second mile of the first heat of the national championship race. The *Green Dragon* circled the track in 55 4-5 seconds and made the five miles in 4:55 1-5. In the final heat of the championship, Oldfield won and reduced the time to 4:52. This victory puts him in the lead on the national grand circuit. Cedrino made the

to-day Eddie Bald captured the second race and took the cup. The event was run in two preliminary heats and a final. In the first heat were the Columbia, H. J. Stevens' Buick and Leon G. Morrill's Winton. Bald won without difficulty in 7:14, with Morrill second. In the second heat were F. E. Wing's Queen, C. L. Hoyt's Rambler and W. H. Lodge's Yale. The Queen had a good lead for a time, but had trouble and stopped, allowing the Yale to win in 9:12. In the final Bald won by half a mile over Morrill, nearly a mile over the Yale and more than a lap over the Rambler in 7:10 3-5.

One of the most interesting events was the ten-mile for cars of 24 horsepower or less. There were five starters. A. R. Bangs with a stripped Franklin, H. Ernest Rogers with his Peerless, C. B. Grout with the new Grout gasoline tourist, H. M. Snow with an Acme and Fred E. Hoyt with a Clement. Hoyt dropped out in the second mile and though Snow stayed in to the finish he was not a factor in the contest. With the other three, however, it was horse and horse, the lead changing in almost every lap. Bangs had the advantage on the turns and Rogers and Grout on the stretches. Rogers won in 17:05 4-5 by a quarter of a mile over Grout. Bangs was third.

admission fees to which will, in the aggregate, enable the promoters to hang up liberal prizes in addition to paying other expenses.

With track racing practically dead, it is argued that the beaches afford the only safe outlet for manufacturers and owners to demonstrate the speed of their cars.

## SYRACUSE RACES SEPTEMBER 16.

The second annual automobile race meet, under the auspices of the Automobile Club of Syracuse, will be held Saturday, September 16, in connection with the New York State Fair, of which it is scheduled to be one of the chief features. There are to be eight events, principal among which will be the five-mile open free-for-all. All the races will be run under the rules of the American Automobile Association, and handsome prizes will be awarded to the winning cars. On Friday evening, September 15, an automobile parade is to be held, and it is expected that a large number of cars will participate.

Automobile street-sweeping machines are to be added to New Orleans' municipal outfit for the fight against yellow fever.

## BEACH TOURNAMENT ENDS.

Christie Makes a Flying Mile in :38 Flat  
at Atlantic City.

## Special Correspondence.

ATLANTIC CITY, Sept. 9.—Good order, careful management and clean sport characterized the closing day of the beach races here last Tuesday. Two miles of wire was strung along the course and a sufficient number of policemen were on hand to keep the course clear. The course, which is conceded by drivers to be unsurpassed in the north, was slightly heavy at places, but, despite this, a run of 38 seconds for the mile was made by Walter Christie, and the Ford racer covered the same distance in 38.3-5 seconds. In the trials against time the Ford made a number of efforts, but the above on the first attempt was the best. Christie, who made the best time of the day, passed over the course only once under timing conditions, as his car went wrong early in the day. Campbell, in the Darracq, could not get below 40 2-5 seconds, although he tried repeatedly.

The most exciting racing of the day was in the two events between the Ford and Darracq cars, the first being won by the Darracq in 43 seconds, while the Ford was only one-fifth of a second later. In the other match race the times were Ford, :42; Darracq, :42 1-5.

The timers were S. M. Butler, Richard Mann and A. E. Maltby, while the starter was F. J. Wagner.

Summaries of the other events follow: One mile for touring cars carrying three passengers, moving start.—Charles Myers, Upton, 1st, time 1:48 3-5; John Donnelly, National, 2nd, 1:50 4-5.

One mile for American made cars under 30 horsepower.—C. Bacharach, Packard, 1st, time, 1:21 1-5; James Duffy, Pope-Toledo, 2nd, 1:31 3-5; G. H. Jones, Jones-Corbin, 3rd.

One mile for touring cars costing \$2,500 or less.—C. J. Swain, Winton, 1st, time, 1:19 2-5; J. Bacharach, Packard, 2nd, 1:23; J. Wilkins, Jr., Winton, 3rd.

One mile for touring cars standing start.—C. J. Swain, Winton, 1st, time, 1:46 3-5; J. Wilkins, Jr., Winton 2nd, 1:47 2-5; G. H. Jones, Jones-Corbin, 3rd.

One mile for stripped cars weighing 1,432 to 2,204 pounds.—Wilkie, Buick, 1st, time, 1:11 4-5; C. J. Swain, Winton, 2nd, 1:34; Buick Company's Buick, 3rd.

## WANT UNIFORM RULES.

Meeting of North Shore Village Presidents to Adopt One General Law.

## Special Correspondence.

CHICAGO, Sept. 9.—It is probable that the squabble between the automobilists of Chicago and the north shore authorities will soon be settled to the satisfaction of all concerned.

For some months it has been seen that if something were not done to secure uniform speed regulations among the various villages and suburbs on the north side, the warfare would be continued indefinitely. A meeting was held last Tuesday between the directors of the Chicago Automobile Club and the village board of Glencoe—the village which has become famous in motordom on account of its "bumps." A plan was there formulated which should solve the problem. It was decided to have the presidents of the town and village boards take concerted action on the matter. A meeting will be called in the near future at which an effort will be made to secure uni-

## THE AUTOMOBILE.

form automobile regulations and speed ordinances. The backers of the plan believe that they can reach a rational solution of the speed question. The framers of the new law will consult with the officials of the Chicago Automobile Club in regard to all important matters, so that all parties may be satisfied.

An interesting phase of the warfare between motorists and the Evanston board of trustees is seen in the case of Policeman Arthur Johnston, who shot the tire of a machine run by Walter Cartwright recently, while he was touring through the village with a party of friends. Johnston has been held to the Criminal Court by Justice Cochrane, under the charge of assault, with a deadly weapon. His bond was placed at \$500. Members of Cartwright's party testified that Johnston fired one shot to stop the machine and two more as it was slowing down. Justice Cochrane said:

"The method used by Johnston is dangerous. If it were pursued one cannot tell what might follow. Some of the bullets might strike in a more dangerous place, and it can easily be seen how persons could be seriously injured or possibly killed."

It is probable that chauffeurs will become prominent around the city hall in the near future if city officials follow the example of City Electrician Carroll. He has requested the civil service commission to furnish him with a chauffeur to operate his machine, claiming that horses are too slow for him, and he is unable to cover the distance required of him unless he rides in an automobile. The other city officials are watching the result of his request with considerable interest. If it is granted, it is probable that the commission will be swamped with similar requests.

## WORCESTER GYMKHANA PROSPECTS.

## Special Correspondence.

WORCESTER, MASS., Sept. 11.—The gymkhana of the Worcester automobile and Grafton country clubs acting jointly, to be held at the grounds of the latter club in North Grafton on September 23, promises to be as big an event of its kind as was the Dead Horse hill climb.

The committee having the affair in charge completed arrangements for it last week, and also made a trip to the club grounds to look them over.

In his Great Arrow touring car, which has a wheel-base of 100 inches, Percival Whittall demonstrated beyond a doubt that the grounds are most suitable, and will meet all requirements.

In all, there will be twenty events on the card for the afternoon's sport, and the only event on the list which will permit of any real danger is that of a relay race for men and women drivers. The track is extremely small.

In the flower fete there are sure to be a large number of unique and tastefully decorated cars.

## ORGANIZING A WASHINGTON CLUB.

## Special Correspondence.

WASHINGTON, Sept. 10.—A number of prominent automobilists of this city met Thursday evening in the rooms of the board of trade and talked over the advisability of organizing an automobile club. The situation was gone over carefully and every person present was given an opportunity to offer suggestions, many valuable ones thus being obtained. It was pointed out that Washington, with nearly 2,000 automobilists, is behind other cities of much less importance, having no automobile club of any description, and consequently no social di-

versions for the automobilists. A number of propositions looking to the securing of a country club house were made, and a committee of five, with Leroy Maik as chairman, was appointed to consider each one and make a report at a meeting to be called later in the month.

It is expected that a permanent organization will be perfected some time this month, and it is probable the new club will secure temporary quarters at a well-known road house some miles north of the city.

## NEWS NOTES OF THE CLUBS.

ATLANTIC CITY.—The Atlantic City A. C. was organized here recently and conducted the races on the beach. The officers are as follows: President, Walter E. Edge; vice-president, Louis Kuehnle; treasurer, John Donnelly; secretary, Robert M. Johnston. The organization is incorporated under the laws of the State of New Jersey.

PITTSBURG.—The A. C. of Pittsburg has united with the Civic League in the fight to keep the Pittsburg Railway Company from laying tracks on Grant boulevard. At the last meeting of the governors, \$100 was voted for this purpose. The club is also agitating the matter of getting all the automobile supply houses to furnish supplies to club members at a reduction.

CINCINNATI.—The A. C. of Cincinnati has decided to hold a hill-climbing contest here some time in October, owing to the success of the one held on Paddock Road last spring. The place has not been definitely decided yet, but it is probable that the same course will be used. The club has no intention of allowing interest to slacken during the winter, and, in addition to the issue of the Year Book, is planning a series of talks on their experiences by members.

NEWPORT, R. I.—The Automobile Club of Newport was incorporated on September 6. The incorporators are William Watts Sherman, Reginald C. Vanderbilt, Royal Phelps Carroll, Lorillard Spencer, Philip F. Conroy, Henry Bull, Jr., E. G. Hayward, F. C. Van Horn and Richard C. Derby.

The association is organized for the purpose of sociability and the planning of pleasure trips and road races. The members of the club, also, are determined to have just laws passed regarding the speeding of automobiles, claiming that the present speed law is unfair.

GRAND RAPIDS, MICH.—The fight between the automobilists and the city authorities has ceased, the bicycle policemen having been called off and the automobile club having made no new move against saloons and bars kept open on Sundays in violation of the law. Automobilists are enjoying immunity from arrest; only four cases are awaiting trial and these have been postponed indefinitely. Four cases started by the automobile club against hotel proprietors for keeping bars open on Sunday are pending, but it is not likely they will be pushed.

WORCESTER, Sept. 11.—The first ladies' night ever held by the Worcester Automobile Club, was Tuesday night, in the club quarters in the Bay State House. Charles J. Glidden was the principal entertainer, giving a lecture on "A Tour of the World in a Motor Car," illustrated by stereopticon views. Work of organizing hill climbs, orphans' day and combating troublesome country constables, are advanced by members as excuses for their seeming negligence in not providing, heretofore, some sort of social entertainment for those of the opposite sex who share their enthusiasm in the sport.

## INDUSTRIAL

## FREIGHT RATE REDUCTION.

## Manufacturers to Combine on One Argument Before Classification Committee.

Arguments of the three national manufacturers' associations for reduction of freight rates on automobiles, are to be combined in one argument and presented by one man at the October meeting of the Official Classification Committee of the railroads, as a result of a discussion of the subject at meetings of the executive committee and subcommittees of the National Association of Automobile Manufacturers, Inc., held Wednesday and Thursday of last week in New York. As the Classification Committee is a very busy organization, it was felt that a combination of all the arguments of the different automobile bodies, backed by the weight of the whole industry, would receive more favorable attention than separate arguments presented by three or four organizations. The freight committee of the N. A. A. M. has been in consultation during the last three months with experts in traffic matters.

Those present at the conference on the subject were, President Clifton, M. J. Budlong, and Traffic Manager Marvin, of the Association of Licensed Automobile Manufacturers; General Manager McMullen, of the American Motor Car Manufacturers' Association, and Messrs. White, Innis and Chapin, of the freight committee, and General Manager Miles, of the National Association of Automobile Manufacturers. After a thorough discussion a line of action was decided upon and approved by the N. A. A. M. and the A. L. A. M., and will probably be approved by the A. M. C. M. A. The argument is to be presented for the N. A. A. M. by President Clifton.

As a matter of formality the National Association granted a sanction to the Licensed Association to hold the automobile show in Madison Square Garden next winter. An application in regular form by the Boston Automobile Dealers' Association for a sanction was also granted.

A suggestion by S. D. Waldon to hold a race of 300 miles between cars of the same weight and cylinder capacity was discussed at length, and although the executive committee is not disposed to regard racing favorably, a committee consisting of Messrs. Waldon, Davis and Clifton was appointed to give full consideration to the proposal.

## HUNTING UP CUSTOMERS.

## North Dakota Auto Salesman Canvasses His State in a Car.

## Special Correspondence.

MINNEAPOLIS, Sept. 11.—Maurice Wolf, in charge of the Fargo, N. D., business of the Pence Automobile Company of Minneapolis, drums up business by going after prospective customers instead of letting them come to him. The North Dakota agency is the largest in the state and special attention is devoted to the sale of Cadillacs. Mr. Wolfe does not have frequent occasion to come to Minneapolis; he is kept too busy, especially at this season of the year.

"Autoing it out to the people, is the best method of doing business" said Mr. Wolfe, during a recent brief visit here. "North Dakota is an excellent state for driving the

automobile. The entire state is practically one stretch of prairie land—level as a floor. As a result, road-building has been easy, and the very best results have been attained. Now, with conditions like that, you can see that it pays to go about in your own machine, instead of relying upon railroads. And then, again, there is this advantage. You must remember that everybody in North Dakota is not quite familiar with the automobile. Of course, they have read a great deal, but only occasional machines pass through some of the towns.

"It has sometimes appeared as if a town has temporarily quit business just to come out and look at my car. Now, when a salesman can attract as much notice as that in a town, he ought to be able to do a little business. Because these people turn out en masse to look at an auto, does not mean that they are "gawks." Quite the contrary. They are interested. They do not ask a lot of fool questions about this, that, and the other thing about a machine. Their questions are intelligent, and I must say that very few of them would prove material for "Rube" jokes.

"During my travels throughout the state, I have been nearly to the western boundary, and almost as far as Portal, at the Canadian boundary. I will say this for the state, the automobile interests are not antagonized by the rural residents. Of course, we have no fool drivers up here, and that helps business a little bit. I frequently have occasion to stop at some farm house between towns, and invariably find the people there courteous and hospitable, even to an automobilist.

"I have sold a large number of the small machines during the present season, and while most of my sales have been made in the towns, not a few farmers have picked up what appeared to them to be bargains. The season is now nearing its close, but a good start has been made here, and next year we will be doing something that is very much in line with the proverbial North Dakota bumper crop."

## RECENT INCORPORATIONS.

The Lebanon Motor Company, Jersey City; capital, \$200,000. Incorporators: Collard Upton, Arthur J. Hoverton and H. R. McLaughlin.

Illinois Automobile & Parts Company, Peoria; capital, \$10,000; manufacturing. Incorporators: J. A. Holsman, Robert P. Jack, Herman C. Kleene.

Dudley Auto School & Garage Company, Boston; to maintain a public garage; capital, \$10,000. President, not given; treasurer, James Allen; clerk, William C. Free, both of Boston.

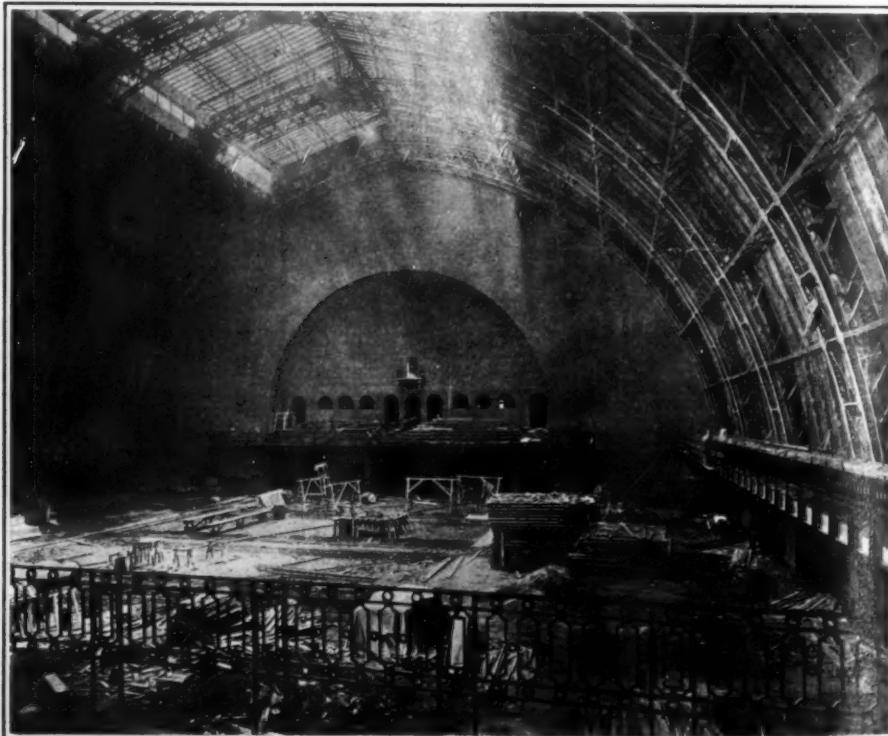
Renault Freres Agency, New York manufacture motors, engines, etc.; cars, wagons, boats, etc.; capital, \$15,000. Incorporators: Clarence A. Tileston, Maurice G. Bernin, Herbert B. Miller, Robert E. Prince, all of New York.

Leyland Automobile Feeding Oil Cup Co., the Bronx, New York; manufacture automobile feeding oil cups, etc.; capital, \$10,000. Incorporators: William, Mary J. and John W. Leyland, all of 489 East One Hundred and Forty-fourth street, New York.

Auto Rubber Tire Exchange, New York; sell tires, tubes and shoes for automobiles; capital, \$5,000. Incorporators: Jerome C. Lewis and Ralph W. Booth, both of 140 Nassau street, New York; Amy H. Lewis, 102 West Seventy-fifth street, New York.

New York School of Automobile Engineers, New York; capital, \$25,000; to maintain a school of instruction in making and operating automobiles. Incorporators, W. Irving Fickling, 309 West 93d St.; Clarence McMillan, 28 West 128th St.; Ralph H. Higgins, 25 West 8th St.; all of New York.

An automobile company has been incorporated at Jefferson City, Mo., to manufacture and sell automobiles in Kansas City. The capital of the concern is \$200,000. The holders of the stock are C. H. Alexander, of Kansas City; J. W. O'Neill, Anton Smith and Clement Smith, of Topeka; Dante Barton and F. C. Merry, of Kansas City, and Terry Stafford, of Topeka.



PRESENT CONDITION OF MAIN HALL OF SIXTY-NINTH REGIMENT ARMORY, NEW YORK, WHERE A. C. A. AUTOMOBILE SHOW WILL BE HELD NEXT JANUARY.

## THE AUTOMOBILE.

## News and Trade Miscellany.

The Motor Transfer Company, Richmond, Va.; to deal in automobiles. Incorporators: H. D. Eichelberger, president; W. C. Noland, secretary and treasurer, both of Richmond, Va. Capital stock, maximum, \$15,000; minimum, \$5,000.

Hicks Gas Motor Company, Waycross, Ga.; capital stock, \$18,000. Incorporators: George W. Deen, A. Sessions, C. M. Sweat, F. L. Sweat, O. H. Lowther, J. M. Bell, W. A. Price, W. R. Beach, B. F. Beach.

## WINNIPEG ROAD RACE.

First Race for Dunlop Trophy Won by MacLeod in Cadillac Runabout.

*Special Correspondence.*

WINNIPEG, Sept. 4.—The first race for the Dunlop trophy, presented by the Canadian Dunlop Company to the Winnipeg Automobile Club for annual competition over the Manitoba circuit, was held yesterday, and although there were only four starters, the race was most interesting and attracted many autoists out into the country to see the finish at Deer Lodge, one of Winnipeg's most popular resorts.

The starters were sent away in the following order, at two-minute intervals: J. Moxam, Ford light touring car; W. C. Power, Ford light touring car; J. K. McCulloch, Cadillac Model B; Russell MacLeod, Cadillac runabout.

The course was 26 3-5 miles long and was covered twice. It presented numerous obstacles which tried the reliability of the cars severely, the road surfaces in places being cut up by the traffic into ruts two feet deep, and at once place the road ran through the bush where the scrub hid the cars from sight, the only thing to be seen being the drivers' heads.

Shortly after the start Moxam got into trouble with his clutch, and after several attempts to make a repair abandoned the race. MacLeod, who started last, overhauled the rest of the competitors and completed the first circuit in 1 hour 3 minutes, and without stopping went on for the second round. Power arrived shortly afterward, and lost 9 minutes filling up with water and repairing a leak in the coils. McCulloch came in sixteen minutes after Power with his bonnet and dashboard loose, and, after effecting repairs by means of a rope, started off on a stern chase of the leaders.

When about half way on the second round, MacLeod also got into trouble with his hood, and while making repairs was passed by Power, who was running finely, having regained all the lost time on the first round; shortly afterward, however, the bottom fell out of his battery box, and one of the batteries, falling between the chain and the frame, caused the chain to break and allowed both MacLeod and McCulloch to get ahead of him again.

MacLeod beat McCulloch in the run home and won the race by sixteen minutes in 2:09:30. He has the honor of being the first man to place his name on the shield, and also takes the gold medal presented by Dr. Watt, a member of the club, for the first man home. McCulloch captured the silver medal presented by Mr. MacLeod, the bronze medal presented by Harold Sprague going to Power.

A. Emmett, secretary of the club, acted as judge and timekeeper. The race is open to all comers, and next year it is hoped that outside clubs will send representatives.

Some men would rather get chewed up in an automobile accident than to be safe and well in church.—*LaCrosse (Wis.) Chronicle.*

The Toledo Exhibition Company, which has charge of the local county fair, has added a new department to its line of exhibits, and this year handsome prizes will be offered to those who display the finest and most serviceable automobiles.

The old weather-worn speed law signs in Leicester, Mass., which were made of cloth, and had been in place for two years, are to be replaced by new, larger, and more durable signs, more conspicuously displayed.

The automobile garage which has been conducted for the last two years by the Hall-Kirk Company, on Ontario street, Toledo, has been purchased by W. S. Weed, of Chicago, who has already taken possession of it. Mr. Weed will be represented in this city by his son-in-law, J. V. Thomas, also of Chicago.

Mayor Finch, of Toledo, proposes as a remedy for auto speeding in the main streets of the city, that a license ordinance be enacted and owners of cars required to display large numbers on the rear of their cars. Ohio has no registration law and Toledo has been without an auto license for a year.

Tire weights and sizes and tire guarantees were the subjects of discussion at a meeting in Cleveland, at the Hollenden Hotel, last Wednesday, between Howard Raymond and W. E. Miller, representing the tire manufacturers association, and Albert Pope and L. H. Kittridge, representing the automobile manufacturers' association.

To meet the increasing demands of its trade, the Packard Motor Car Company, of Detroit, has recently added a second story to one of its detached buildings, and has erected a new lumber dryhouse and bending department. This latter is located at the extreme northwestern corner of the plant, is 40 by 70 feet and two stories high. The company is installing a large quantity of new machinery and expects to be in a position to turn out all orders without delay.

The Schug Electric Manufacturing Company, of Detroit, has removed from 246 Jefferson avenue to the Boydell Building, Champlain and Beaubien streets, where it will occupy the entire first floor.

The addition to the plant of the Western Motor Company, of Logansport, Ind., has been completed and the machinery installed. The company anticipates putting out a large supply of Rutenber motors during the coming season.

One of the most up-to-date garages in the Northwest is that of the Haynes Automobile Company, located at Minneapolis, Minn. The building is 165 feet long, and of ample width for lining up two rows of automobiles, leaving a driveway through the center. It has a capacity for taking care of from thirty to forty touring cars.

George E. Hawley, formerly secretary of the Automobile Equipment Company, of Detroit, has resigned his position with this company, and has taken an interest in the Gay Manufacturing Company, of Detroit.

To provide more room for the increasing business in the various types of Pope cars, it has been found necessary to give up the storage end of the big Pope garage in New York. Almost the entire main floor will be taken for offices with a salesroom in front and the second floor will be a salesroom for new cars. On the upper two floors will be an excellent repair shop with machinery of the latest designs. Manager Robert E. Fulton says the New York branch of the Pope Manufacturing Company, in

addition to retailing, will act as general Eastern distributors for Pope-Waverley, Pope-Tribune, Pope-Hartford and Pope-Toledo cars, supplying agents within about 100 miles of New York.

A feature of the Oakly Fair, to be held in Cincinnati on September 15, will be the automobile races, under the auspices of the Hamilton County Agricultural Society. The race exciting the greatest amount of interest is the Automobile Dealers' handicap, the trophy for which is a handsome silver cup, which must be won for three consecutive years before it becomes the property of any contestant.

The C. Z. Kroh Manufacturing Company of Toledo, has arranged with the National Land & Investment Company to erect a three-story brick building, in which it will carry on the manufacture of automobile and buggy tops.

The Buick Motor Company, which is moving from Jackson to Flint, Mich., is now considering plans for its new building. The contract for the construction will probably be let early in the fall, and it is expected that the entire plant will be housed at Flint at the opening of the new year.

The Reo Motor Car Company has removed its general sales department to Lansing, Mich., where increased facilities enable it to meet the growing demands of the trade. The New York and Philadelphia branches will be retained, and will, as heretofore, control local territory.

According to a cable message, twenty-one of the fifty-three cars that won prizes and certificates for finishing the Pyrenees Tour in Southern France, were fitted with Continental tires. Among these were, Belleville and Richez, who took first prizes respectively in classes 3 and 5, and Ballot, who won second prize in class 4. The regularity cup was also won on Continentals.

The fire commissioners of San Francisco have awarded to the Pioneer Automobile Company (agents for the Winton) the contract for furnishing automobiles for the use of the Fire Department of that city, and an initial order was placed at the last meeting of the commissioners for a 30-horsepower Winton touring car for the personal use of Chief Sullivan. The use of automobiles in fire departments is becoming very general, most of the large cities of the United States now using them for this service.

It is proposed to start an automobile school in Grand Rapids, Mich., patterned after those conducted by the Y. M. C. A. in several leading cities.

The new Buffalo factory of the E. R. Thomas Motor Company, manufacturers of the "Thomas Flyer," is now up to the second story. The building is unique, being the first in Buffalo constructed entirely of concrete. The company announces that its new model, with many interesting improvements, is almost completed.

The Centaur Motor Company, of Buffalo, has been formed to enlarge its salesroom, due to its constantly increasing business. The company handles a complete line of automobiles, and intends making the Peerless its leading touring car for 1906. This company reports several new designs in steering wheels, in the manufacture of which it is engaged.

Cincinnati automobilists in general are taking the ban on Gabriel horns in good part, although a few who have recently invested in them are inclined to be indig-

nant. The rule is not being strictly enforced, however, and at the worst, it applies only to the city and so cannot interfere with their most important use, namely, the awakening of dozing rustics on top of hay wagons.

The Continental Motor Mfg. Co., formerly the Auto Car Equipment Co., of 240-244 West Lake street, Chicago, will, about December 1, remove to Muskegon, Mich. In the meantime the company will erect a new factory, main building, 200 by 100 feet, two stories in height, and also a foundry building, and will employ about 200 men in operating the plant.

James Joyce has resigned as sales manager of the Electric Vehicle Company, and will assume charge of the American business of A. Bianchi, of Nice, France, who is European agent for Columbia automobiles.

The F. E. Lockwood & Co. automobile agency, of 39 Wall street, Norwalk, Connecticut, have purchased ground adjoining their present garage, and announce that they intend to double their storage capacity. In addition to having the agency for several well-known cars, the concern does a large business in automobile sundries and repairing.

Two Knox busses with seating capacity for twenty-five passengers are on the way from New York to Havana, Cuba. On account of the activity of the different political parties just now preceding an election on the island, the busses will be much in demand for night political speechmaking trips.

Four automobiles are now in use on Dungeness, the beautiful island off the Georgia coast, which is the Southern home of the Carnegie family. Two of the cars are Pope-Waverleys, and the other two are family busses, all the product of the Pope Manufacturing Co., and were substituted for the horse-drawn vehicles formerly used.

The Kiser Testimonial race meet at Dayton, O., netted the sum of \$2,622.68, for which amount a check was sent to Earl Kiser by Harry C. Bard, chairman of the finance committee for the meet.

The Wayne Automobile Co. has been incorporated at Chicago, with offices at 108 Dearborn street. The Schenck Carriage Co., of St. Joseph, Mo., has secured the agency for the Wayne cars for that city.

Charles Burman, of Cleveland, O., who has been driving Peerless cars on the track as the racing mate of Barney Oldfield, has abandoned racing and will devote his time to the sale of Peerless cars. The accidents to Oldfield, Jay and Kiser, all of whom were friends of Burman, are responsible for the change.

An outfit for the rapid inflation of automobile tires has been placed in the new store of the Neal & Brinker Co., 110 West Forty-second street, New York. This is a free convenience for automobile owners, and may be used at any time between 7:30 A. M. and 6 P. M. The Neal Brinker Co. handles sporting goods, hardware, automobile tool kits and the like.

The stockholders of the Reo Motor Car Co., Lansing, Mich., decided at a recent meeting to increase the output of cars for 1906 to 3,500 cars, at least 500 to be finished and ready for delivery by January 1 next.

The Atlas Automobile Company, of Pittsburgh, has disposed of 360 second-hand cars in twenty months. This was the first large second-hand agency in the city, and its success has been very great. The sales ranged from \$175 to \$700, but a few cars were sold at from \$1,400 to \$1,700 each. A large proportion of the buyers have come from surrounding towns, but there has been a steady stream of buyers from city

automobilists, who thought they could not afford new machines to learn with. Many of the machines were purchased from or sold on commission, for the regular dealers, who took them in exchange for new cars.

G. P. Dorris, for a number of years superintendent and designer of the St. Louis Motor Carriage Co., of St. Louis, is now heading a new company bearing his name, which was organized in St. Louis recently with a capital of \$55,000. The new company will make four-cylinder touring cars. Plans of the new company have, however, not yet been announced, though a plant will be secured in the near future and cars built for next season.

Athol, Mass., whose police have been exceedingly lenient in the matter of automobilists exceeding the speed laws of that city, announced last week, that because a great majority of the motorists passing through the town impose upon good nature by driving about thirty miles an hour, the fifteen-mile-an-hour law will be enforced to the letter.

Shrewsbury, Mass., selectmen announced a speed limit of fifteen miles an hour. Shrewsbury is east of Worcester, and on the direct New York-Boston route, which is a state road all through the town, which is exceedingly small. The selectmen are first cousins to the Leicester board.

George S. Atwater, formerly with the B. F. Goodrich Company, has been secured by the Atwood Manufacturing Company to represent the concern in its sales department. This latter company announces that it will shortly put out its 1906 line of lamps.

The Chicago branch of the Electric Vehicle Company has been moved from 1413 Michigan Avenue to Nos. 1332-1334 on the same avenue. This latter is a new building, and the company has secured spacious quarters.

We are informed by the F. A. La Roche Company, of New York, agents for the Darracq automobiles, that the report of the cracking of a cylinder on the Darracq racer at the Cape May beach tournament and the consequent towing off of the car, was erroneous, as no such mishap occurred.

Henry C. Cryder, formerly of the Consolidated Motor Company, and Theodore A. Havemeyer have purchased the American selling rights of the Leon Bollee cars from the Leon Bollee Syndicate, Ltd., and will import them under the firm name of Cryder & Co. The firm will also handle other makes, delivering them either in America or at the garage of the Societe Franco-Americaine in Paris. The firm is negotiating for garage connections.

A company called the National Sales Corporation has recently been formed in New York for the purpose of handling the sales of automobile specialties. The idea is to take the entire work of selling off the hands of the manufacturer. The president of the new concern is Emil Grossman, secretary and general manager of the American branch of the Continental Caoutchouc Co. E. J. Kuegeman, formerly sales manager of the Auto Brass and Aluminum Co., is general manager. The main office of the corporation is at 256 Broadway, New York, while branches are located at Chicago and Cleveland.

Buchanan, Mich., is to have an automobile factory. The concern will be known as the Lee & Perkins Manufacturing Company, and will manufacture vehicle axles, springs, vehicles and automobiles. The company is capitalized at \$200,000 of which \$175,000 is already subscribed. The shareholders are, Fred E. Lee, Dowagiac; Jud-

son S. Clay, Dowagiac; Julius O. Becroft, Dowagiac; Henry H. Porter, Buchanan, and C. Porter, Buchanan. The company will own real estate valued at \$40,000, and the dam at Buchanan. Articles of incorporation have been filed and the company will immediately begin putting the old Lee & Porter mill in shape for the work.

A very handy box of material to use in case of personal injury is being presented by the Travelers' Insurance Co. to each of its automobile liability policy holders. The box, which is prepared by Johnson & Johnson, of New Brunswick, N. J., contains prepared bandages of different sizes, adhesive plaster, safety pins, antiseptic gauze and a pair of tweezers—all articles of the greatest use in case of accident. Inside the cover of the box are directions for using the contents. The case measures 2 1/2 by 3 by 7 inches, and weighs but a trifle, and is therefore convenient and easy to carry. The Travelers' Insurance Co. very courteously placed one of these cases in the room of every tourist at the Hartford hotels where Glidden tourists remained over night; each box was marked with the name of the automobilist for whom it was intended. It fifteen-mile-an-hour law will be enforced to highly appreciated.

Announcement is made of the formation of the Milwaukee Steel Foundry Company by C. F. Maynard, formerly secretary and treasurer of Crucible Steel Casting Company, J. G. Shaw and W. T. Maynard. The circular sent out by the concern states that all sorts of steel castings will be manufactured, also electrical steel, tool steel, manganese steel and machinery steel. The foundry is equipped with the latest improved machinery and is prepared to turn out work at the shortest notice possible.

George A. Bunker, the former cycle champion, has been appointed manager of the Acme Motor Car Company, of New York. This company has secured the metropolitan district agency for the Frayer-Miller car.

One of the 1906 cars of the Logan Construction Co., of Chillicothe, O., was taken out and given a week's hard and continuous driving to test it in every possible way and find any weakness that might exist. This test proved to be very satisfactory, the car standing up well to the hard work it was given. The 1906 Logan car is built along the same general lines as the 1905 Logan, having a double opposed cylinder motor rated at 30 horsepower and sliding gear transmission with two forward speeds and reverse.

Employees of the Diamond Rubber Co., of Akron, O., to the number of 1,500, held their annual outing at Cedar Point, a Lake Erie summer resort near Sandusky, O. Among the proceedings of the day were interesting experience talks by the employees who had looked after the Diamond tire interests in the Gordon Bennett race. The Diamond Rubber band added to the pleasure of the occasion.

F. W. Ofeldt & Sons, heretofore of Brooklyn, N. Y., known in marine circles as yacht and launch builders, and in the automobile trade as manufacturers of steam automobile specialties, have removed to Nyack-on-the-Hudson, where they have purchased the Charles L. Seabury property. This firm is one of the oldest in the motor boat business. In their new location they will have additional facilities for the carrying on of their automobile business, which has developed rapidly.

An agency for the sale of the Scheber carburetor, manufactured by F. H. Wheeler, of Indianapolis, Ind., has been opened at 338 Fenchurch street, London, England. George Neill & Co. are the agents.

## INFORMATION FOR BUYERS.

**STEEL BELTS.**—The loss or breakage of a fan belt on an automobile motor may result disastrously, especially if the motor is an air-cooled one; overheating, with its many evil possibilities, is likely to follow. A belt that is designed to obviate such trouble has been placed on the market by the Philadelphia Ornamental Wire Co., of 628 Filbert street, Philadelphia, Pa., and is called the "Powco" belt. It consists of a long coil of closely wound steel wire, the ends being joined by steel hooks so as to make a continuous belt. The feature of the device is the remarkable strength and stiffness of the wire of which the belt is made. The coil is wound so closely that the convolutions are pressed hard together when the belt is slack, and when stretched over the pulleys the spring effect keeps it always at an even tension and prevents gradual slackening from stretching. The makers state that long and hard tests have shown that the belt will not stretch, and they believe its life to be equal to that of the car.

**NEW QUARTERS.**—An example of what may be done by sound business methods is furnished by H. F. Borbein & Co., of 2110 North Ninth street, St. Louis, Mo. Six years ago, when this firm commenced the manufacture of automobile running gears and parts, it was located in a small building and could produce but a limited quantity of material. The concern increased its business from year to year until the original quarters were far outgrown, and as a consequence it has fitted up and recently taken possession of a new and spacious factory equipped with modern machinery for turning out work with accuracy and dispatch. This concern manufactures a very extensive line of running gears, automobile parts and bodies—everything, in fact, pertaining to the automobile itself—but does not sell complete machines.

**AUTOMOBILE BOILERS.**—The Steam Carriage Boiler Co., of Oswego, N. Y., makes a specialty of small steam boilers for automobile use. The company makes boilers only, the manufacture of burners not being entered into at present. Oswego boilers are made with seamless steel shells and copper tubes; the heads are riveted in; all holes are drilled, not punched. Seven different styles are manufactured, there being a total of 160 different sizes. A number of special boilers are made with dry-plates inserted; with flat heads riveted to flanges; with one head riveted in and the other integral with the shell; with enlarged fire-box, and so on.

**MILLING MACHINES.**—While the lathe has long been called the "king of tools," the modern milling machine certainly runs a very close second in point of utility. Some new styles of this tool are described and illustrated in a circular recently issued by the Garvin Machine Co., Spring and Varick streets, New York. The new machines are fitted with a special feed device run by a separate belt from the countershaft; the gears through which the speed changes are effected run in oil, and are of hardened steel. It is stated that the work of these machines is particularly smooth and accurate, and that the belt will come off before the tool will chatter. The base castings are heavy and substantial, the knees being particularly solid and strong.

**LEATHER.**—Hand-buffed and machine-buffed Morocco leather, in straight and pebble grain, is offered to the trade in all shades by the Rex-Imperial Leather Co., of Newark, N. J. Although this is a new concern, the individuals comprising it have had years of experience in the manufacture

of the grades of leather handled by the present company.

**NON-EXPLOSIVE TANKS.**—Tanks for the storage of gasoline above ground will be fitted with a device to make them non-explosive if they are shipped to the International Non-Explosive Tank Co., 140 Nassau street, New York city. This company, which has been giving demonstrations recently in New York, manufactures a patented filling tube for such tanks. The tube is double; that is, one tube of perforated metal telescopes inside of another similar tube, and between them is placed a cylinder of brass wire gauze, with a mesh as fine as 200 to the inch. This device, which is provided with suitable cap, is inserted in the tank, or can be placed in a metal casing soldered or riveted to one side of the tank, with several perforations through the side of the tank to communicate with the tube. As it is impossible for flame to communicate through the gauze and perforated metal tubes, and there are no other openings into the tank, the tank cannot explode by the ignition, from the outside, of any gas which it may contain. Tanks already built into automobiles and launches can be fitted with the device, and the company also sells new tanks made with its device attached.

**AUTOMOBILE CAPS.**—The automobilist, or the would-be automobilist, can always be distinguished by his cap, which has a distinctive cut that does not allow of its being confused with any other cap. A specialty is



"SHAWMADE" AUTOMOBILE CAP.

made of automobile caps by Ora D. Shaw, of 109 Kingston street, Boston, who makes headgear for automobilists in a large variety of styles and in all suitable materials—leather, cloth, silk, cravette, and so on. The illustration herewith shows one of the many styles of "Shawmade" caps. This concern has branch stores at 831 Broadway, New York, and at 711 Hartford Building, Chicago.

**TIRE HINTS.**—Everything that can be done to eliminate the trouble that occurs at times with pneumatic tires is of benefit to the tire user. Therefore tire users should appreciate the "Tire Manual," recently published by the G & J Tire Co., of Indianapolis, Ind. This is a handy little book, giving a lot of information that every user of pneumatics ought to possess; the explanations are made clearer by means of numerous illustrations. The last pages contain descriptions and prices of a number of G & J tire specialties, such as applying and removing tools, repair outfits and materials, and so on.

**SPEED RECORDER.**—An instrument for both indicating and recording the speed of an automobile or other vehicle has been placed on the market by the Chicago Pneumatic Tool Co., of the Fisher Building, Chicago, and 95 Liberty St., New York. This apparatus is patterned after the railway speed recorder manufactured by this concern; the

device is well known to railroad men, being widely used for indicating and recording train speeds. The automobile instrument makes automatic records on a paper tape, in addition to indicating the speed per hour by means of a pointer on a dial. At the same time, the total mileage is registered on an odometer. By examining the tape, the owner can ascertain the distance traveled, the speed at any point and the stops made. Long use in railroad service has eliminated weak points from the apparatus, and but few changes were necessary to adapt it to use on the automobile.

**TWENTIETH CENTURY MUFFLER.**—One of the most recent ideas in muffler construction is embodied in the Twentieth Century muffler placed on the market by the Powell Mfg. Co., of Clinton, N. Y. The muffler consists of a series of pressed steel cups fitting into each other and bolted together, perforations being provided for the passage of the gas from one cup to another. The gas openings are so arranged as to keep the gases well toward the outer walls, where they may be the more quickly cooled. These mufflers are made in sizes suitable for cars and for motorcycles, and the manufacturers state that they are exceedingly silent and produce practically no back pressure.

**KNOX CARBURETER.**—An ingeniously designed carbureter, said to be automatic in operation, has been placed on the market by the Camden Anchor-Rockland Machine Co., of Rockland, Me., under the name of the "Knox carbureter." This apparatus is of the float feed type and is fitted to take both warm and cold air, which is mixed in a special chamber. The air then enters the spray-nozzle chamber through ports that may be so regulated as to give a flow of heavy or light gas, as may be required. Knox carbureters are made for two-cycle and four-cycle motors of all types and are fitted with throttles or not, as the purchaser may order.

**LAVA SOAP.**—The fact that automobilists not only find difficulty, at times, in keeping their hands from getting soiled, but also find it difficult to remove the smudges, has had the effect of bringing out a number of preparations for removing the signs of struggles with machinery. One of the most recent of these is Lava soap, manufactured by Wm. Waltke & Co., St. Louis, Mo. This soap is put up in cakes of two sizes, and is said to be excellent, not only for automobilists, but for everything from washing dishes upward. One of the advantages claimed for it is that it will not injure the skin in the slightest degree, while it will remove oil and grease with great facility.

**ANTI-SKID TREAD.**—Slipping on wet pavements or muddy roads, especially when going up hill, is one of the failings of the ordinary smooth tread tire. A special tread intended to prevent slipping and also to protect the tire has been placed on the market by the Leather Tire Goods Co., of Newton Upper Falls, Mass., and is called the Woodworth detachable tread. It consists of a band of chrome-tanned leather which covers all the tire except a small strip near the rim. The tread is made of three thicknesses of leather and is thickly studded with steel knobs which afford the required grip on the road surface. The sides of the tread are of one thickness of leather, and the whole is lined with soft wool felt to prevent chafing of the tire proper. The tread is fitted with side wires. In order to apply it, the tire is deflated, when the tread can be slipped over it. Upon inflating the tire the tread is firmly gripped and held in place.

## TRADE LITERATURE.

National Battery Co., Buffalo, N. Y.—Leaflet illustrating the National storage batteries put up for ignition work.

F. A. Goebel, Marietta, O.—Circular illustrating and describing the "Snapit" lock switches for automobiles or motor boats.

O. J. Childs Co., 50 Liberty street, Utica, N. Y.—Circulars illustrating and describing the Childs chemical hand fire extinguisher.

General Automobile Supply Co., 86 Chambers street, New York.—Catalogue of an extensive line of automobile supplies and accessories.

New Process Raw Hide Co., Syracuse, N. Y.—Folder containing some strong statements with regard to rawhide gears and pinions for use in automobile work.

Michigan Automobile Co., Ltd., Kalamazoo, Mich.—Circular illustrating the Michigan light touring car and containing letters from persons who have used Michigan machines.

Robert Instrument Co., 57 Shelby street, Detroit.—Card illustrating the Robert voltmeter, designed especially for testing batteries such as are used for automobile ignition work.

Fannestock Transmitter Co., 132 Havemeyer street, Brooklyn, N. Y.—Card giving the names of manufacturers of batteries who use the Fannestock Transmitter Co.'s wire terminal connector in the regular equipment of their batteries.

Goodyear Tire & Rubber Co., Akron, O.—Booklet shaped like the outline of a tire on universal rim, giving illustrations and descriptions of Goodyear tires and Universal rims, which permit of the ready removal of the tire without the use of a lot of levers and tongs.

Autocoil Co., Jersey City, N. J.—A very handy little pamphlet giving instructions for locating ignition troubles, prepared especially with reference to Autocoils, though, of course, useful no matter what coil is used. Also circular illustrating a number of styles of Autocoils.

Leland & Faulconer Mfg. Co., Detroit.—Interesting and well-illustrated booklet concerning the manufacture of cylinder castings for gasoline engines—a branch of mechanical work that is a specialty of this concern. This little book will be found

interesting by those concerned in such matters.

Steel Ball Co., 840 Austin avenue, Chicago.—Catalogue and price list of Hill Precision Oilers. The catalogue illustrates the Hill oiler and describes its operation. The Steel Ball Co. has also issued a number of fac-similes of letters from manufacturers and others who have used and are satisfied with the Hill oilers.

Standard Welding Co., Cleveland, O.—Large hanger containing vulgar fractions and their decimal equivalents from 1-64 inch to 1 inch by sixty-fourths. Incidentally, the margin of the card is used to advertise the fact that this concern welds by its electrical process all kinds of automobile and other parts, many of them being of such a nature and shape that welding by any other process is out of the question.

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